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AUTHORITY

USAMRMC ltr, 1 Jun 2001.

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Award Number: DAMD17-94-J-4437

TITLE: Cancer Prevention and Control Research Manpower Development

PRINCIPAL INVESTIGATOR: Samuel Shacks, M.D., Ph.D.

CONTRACTING ORGANIZATION: Drew University of Medical Science
Drew-Meharry-Morehouse Consortium Cancer Center
Los Angeles, California 90059

REPORT DATE: October 1999

TYPE OF REPORT: Final

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

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Organization: Drew University of Medical Science
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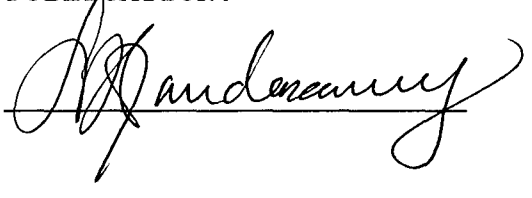

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13. ABSTRACT *(Maximum 200 words)*

The purpose of this four-year project was to implement a nascent three-year manpower development program in breast cancer prevention and control for six post-doctoral fellows at the Drew/Meharry/Morehouse Consortium Cancer Center. Key objectives were for each fellow to develop a research project, submit an application for extramural funding and submit manuscripts to peer reviewed journals.

Fellows included Sherry Crump, M.D., M.P.H., Mosunmola George-Taylor, Ph.D., Tony Highshaw M.D., Vanessa Parker, Ph.D., Ling Wu, Ph.D. and Kangman Zhu, M.D., M.P.H., Ph.D. Mentors included 1) Patricia Matthews-Juarez, Ph.D., Susan Robinson, M.D., M.P.H. and Samuel Shacks, Ph.D., M.D. at Charles R. Drew University, 2) Linda Pederson, Ph.D. and Beverly Taylor, MD of Morehouse School of Medicine, and 3) Louis Bernard, M.D., Margaret Hargreaves, Ph.D., and Kofi Semenya, Ph.D. of Meharry Medical College. Fellows were paired with faculty members and were exposed to a variety of research experiences occurring within DMMCCC and each institution.

Great progress was made by the trainees. The program increased the number of projects and publications relevant to breast cancer among African-American women, expanded the number of faculty members trained in breast cancer research among minority institutions, and increased the pool of minority cancer researchers.

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FOREWORD

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N/A In the conduct of research utilizing recombinant DNA, the investigator(s) adhered to the NIH Guidelines for Research Involving Recombinant DNA Molecules.

N/A In the conduct of research involving hazardous organisms, the investigator(s) adhered to the CDC-NIH Guide for Biosafety in Microbiological and Biomedical Laboratories.

Samuel J. Stachura

PI - Signature Date

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INTRODUCTION

Breast cancer is a leading cause of morbidity and mortality in American women. African-American women have higher mortality rates for this disease compared to white women. To address this issue, the National Institute of Medicine created several initiatives to increase the number of researchers trained in cancer prevention and control research targeting underserved groups. Unfortunately, success of these activities has been limited. The purpose of this project is to expand the pool of cancer control and prevention investigators addressing issues relevant to minority populations and to expand the research base of the Drew/Meharry/Morehouse Consortium Cancer Center (DMMCCC). The hypothesis to be tested is that with "protected time" and appropriate mentors, doctoral graduates can achieve independent extramural funding for breast cancer research within three years.

BODY

The aims of the study were 1) to recruit six doctoral graduates as research fellows to the DMMCCC, 2) to assign at least one faculty mentor to each fellow, and 3) to expand the number of ongoing research projects in the DMMCCC, specifically in the area of breast cancer. Fellows were paired with faculty mentors from one of three institutions; Drew University of Medicine and Science in Los Angeles, California, Meharry Medical College in Nashville, Tennessee and Morehouse School of Medicine in Atlanta, Georgia. Mentors were responsible for overall guidance of the fellow's research activities. Mentors met weekly with their assigned fellow(s) and were required to provide quarterly progress evaluations about each fellow to the executive committee of the DMMCCC. Curriculum vitae of fellows and their mentors are in Appendix A.

The first objective of this manpower development project was to recruit two fellows during year one and four fellows during year two. Potential fellows were identified by sending letters about the training program to various universities and by networking with investigators associated with Historically Black Colleges. Selection of each fellow was made by the executive committee of DMMCCC. This was based on 1) a paper from the candidate indicating their status as a doctoral graduate, interests in cancer prevention and control research and willingness to commit to three years of training, 2) good verbal, interpersonal and written skills, and 3) a personal interview by members of the DMMCCC. Two fellows were recruited during year one and four fellows were recruited during year two. Two of the of six fellows resigned. One fellow completed six months of the fellowship and transferred to another institution to conduct prostate cancer research. A second fellow resigned because of problems that occurred within the infrastructure of the DMMCCC. She completed two years of the fellowship.

The other three objectives of this manpower development project define the tasks and time lines for each trainee to complete within three years. Each fellow was expected to:

1. Develop and implement a research project with aid of mentors by the end of year one
2. Complete an application for extramural funding by the end of year two
3. Submit manuscript(s) to peer reviewed journals during year three

A description of each fellow accomplishments from October 1, 1994 until September 30, 1999 related to the above tasks is summarized below.

Sherry Crump, M.D., M.P.H., a preventive medicine physician, was mentored by Beverly Taylor, MD, M.P.H. at Morehouse School of Medicine. Dr. Crump completed three years of the fellowship. Her project focused on mammography use among high risk groups. She received extramural funding for her project from the Agency for Health Care Policy and Research. Dr. Crump presented results from her project at several meeting, including Era of Hope Meeting. She submitted a manuscript, "Barriers to Screening Mammography Utilization Among Black Women at Grady Memorial Hospital" to a peer-reviewed journal. It is currently being reviewed for publication. She is an Assistant Professor in the Department of Preventive Medicine at Morehouse School of Medicine and continues her work in cancer prevention and control research.

Mosunmola George-Taylor, Ph.D., a cell biologist, completed approximately two years of the program. Linda Pederson, Ph.D. at Morehouse School of Medicine served as her mentor. Dr. George-Taylor implemented a research project, "Electromagnetic Field Exposure and The Occurrence of Breast Cancer in Women." Her project involved faculty from Morehouse and Meharry. Due to unforeseen problems, her results are not available. During year three, the infrastructure of the DMMCCC changed. She was unable to obtain adequate support to complete her project. Dr. George-Taylor is Associate Professor at Clark Atlanta University and continues to work in breast cancer research.

Tony Highshaw M.D., a doctor training to become a urologist, completed six months of the fellowship. He was mentored by Patricia Matthews-Juarez Ph.D. and Samuel Shacks, Ph.D., M.D. at Charles R. Drew University. During his brief training, he developed an interest in prostate cancer research. His desire to conduct prostate cancer research was so intense that he secured an uncompensated position as a fellow at University of Southern California (USC).

Vanessa Parker, Ph.D., completed approximately 36 months of the fellowship. She was mentored by Patricia Matthews-Juarez Ph.D., Susan B. Robinson, M.D., M.P.H. and Samuel Shacks, Ph.D., M.D. at Charles R. Drew University. During her first 12 months in the program, she earned her Ph.D. in preventive care from the USC. Dr. Parker submitted several proposals for funding. She was awarded extramural funding from the Los Angeles County Breast Cancer Early Detection Program to implement a breast cancer education project within South-Central Los Angeles. Results from her study were presented at several conferences, including Era of Hope, and have been prepared for publication as a brief report. Dr. Parker is a new mother and not known to be currently employed, but previously has affirmed her intention to resume a career in research.

Ling Wu, Ph.D. completed three years of the fellowship in 1999. Louis Bernard, M.D., Kofi Semenya, Ph.D., and Margaret Hargreaves, PhD. at Meharry Medical College served as his mentors. He published one paper that was a collaborative endeavor among all three institutions within the DMMCCC. Another manuscript. " Recent Trends in Breast Cancer Incidence Among Black and White Women in Tennessee, 1989-1998" was submitted for possible publication (See-Appendix B1). He prepared a brief report and plans to submit it for publication (See Appendix B13). Dr. Wu submitted a proposal to the Susan. B Komen Foundation and is currently awaiting results. He is an

Assistant Professor in the Department of Internal Medicine at Meharry Medical College and continues to work in breast cancer research.

Kangman Zhu, M.D., M.P.H., Ph.D. was mentored by Louis Bernard, M.D. and Robert Levine, M.D., M.P.H. at Meharry Medical College. Dr. Zhu completed three years of the fellowship. During that time, Dr. Zhu designed three research projects which were funded by the Department of Defense; 1) An Intervention Study on Screening for Breast Cancer Among Single African-American women Aged 65 and Older, 2) Breast Cancer and Risk Factors Among African-American Women aged 20-54 and 3) Methyl-deficient diets, and risk of breast cancer among African-American women. His manuscript "Estrogen receptor status of breast cancer: a marker of different stages of tumor of different entities of the disease?" was published in Medical Hypotheses. Another manuscript "Methyl-deficient diets, methylated ER genes and breast cancer: an hypothesized association" was published in Cancer Causes Control. He is Associate Professor at Meharry Medical College and continues a career in breast cancer research. He is Co-Investigator of a training program that is an extension of this manpower project.

An unexpected task of the study was to fill a position that was vacated by Tony Highshaw MD. It was difficult to provide another fellow similar training experiences because the DMMCCC had loss funding from National Cancer Institute (NCI). It was subsequently decided to extend the pipeline of cancer prevention and control training to pre and post doctoral students with interests in breast cancer research. These trainees are referred to as Replacement fellows. Two of them (Ida-Jean Davis, DC and Carolyn Rowley) were doctorate candidates and were given full time positions for less than one year. The other students participated in breast cancer research projects for brief periods of time (up to three months). These students were mentored by Susan B. Robinson, M.D., M.P.H. and Samuel Shacks, Ph.D., M.D. at Charles R. Drew University.

Replacement fellows

Doctoral candidates

Ida-Jean Davis, a PhD candidate in preventive care, joined the program in 1998. She completed eight months of the program. During that time, she developed a breast health outreach program aimed at increasing knowledge about breast cancer prevention and control among African-American women. She is still involved in prevention research and has a faculty appointment in the School of Allied Health at Drew University.

Carolyn Rowley, a Ph.D. candidate in psychology, joined the program for six months in 1997. She developed a research protocol regarding quality of life in African-American breast cancer survivors. Her project was as an extension of ongoing research projects with the City of Hope Medical Center, King/Drew Medical Center and University of California in Los Angeles (UCLA) (See Appendix C). She submitted a proposal to Susan G. Komen Foundation. It was not funded. She resigned from the program to complete a Ph.D. and is now pursing a research career in prostate cancer at UCLA.

Other replacement fellows

Aaron Banks, a fourth-year medical student at UCLA devoted four hours per week for 10 months to the project. His research study was related to breast cancer survival among African-American women. He received a Young Investigator Award for his work. An abstract was presented to the Multi-Cultural Aspects of Breast Cancer Etiology Workshop(See Appendix D1). The abstract is being reviewed for publication in a peer-reviewed journal (See Appendix D2). This research experience enabled him to pursue additional research training at the National Institutes of Health, Bethesda, MD in January 2000.

Lori Carter, a recent college graduate, devoted 50 percent of her time for three months to the training program. Ms. Carter participated in weekly meetings and obtained information about alternative medicine and breast cancer. This information was valuable to breast cancer survivors. She has been retained as Research Assistant at Charles R. Drew University in Los Angeles, CA.

Anthony Kingsley, M.D., Assistant Professor in Internal Medicine at King/Drew Medical Center, devoted 10 percent of his time to the project for 10 months. He participated in weekly meetings and made several presentations regarding breast cancer and nutrition to Drs. Robinson and Shacks and other faculty at King/Drew Medical Center. This experience has increased his interest in breast cancer research and he intends to seek funding to formally develop and evaluate a slide presentation for educating physicians about breast health and nutrition.

The remaining four students worked on the development a Breast Education Program for Teens. The program provides information about the anatomy and function of breasts, breast lumps and techniques of breast self-examination. The program contains graphic images and for that reason data had to be recorded onto a CD. Due to unforeseen problems, the CD is not operational. When the CD is available, it will be forwarded to US Army Material and Command. Each student who contributed to this endeavor is described below.

Melanie Hill, a high-school science teacher, completed six weeks of the training program. She was instrumental in revising the Breast Education Program for Teens. She contributed to the pilot testing of the CD program and assessing the appropriateness of the program for high school students.

Todd Huffman, a community activist, assisted in reviewing the contents of the program to community leaders to ensure that the material was culturally appropriate. He completed three months of training.

Tsage Habte, an instructor in the Department of Internal Medicine at Drew University, completed three months of the program. She assisted in evaluating the appropriateness of the education program among two high school populations. Mrs. Habte desires to continue working in breast cancer research (See Appendix E).

Mary Saunders, a King/Drew medical student, completed three months of the training program. Ms. Saunders was responsible for assisting with pilot testing and revising the program. She intends to seek funding to formally evaluate the Breast Teen Project among minority high school students.

KEY ACCOMPLISHMENTS

Key accomplishment derived from this training program include:

- An expansion in the number of faculty members able to conduct breast cancer prevention and control research at three Historically Black Medical Institutions
- An increase in the number of minority researchers in cancer prevention and control
- An increase in the number of funded projects at minority institutions, most noteworthy is a training grant in breast cancer at Meharry Medical School which is an outgrowth of this manpower program
- An increase in the number of publications and projects relevant to breast cancer and African-American women

REPORTABLE OUTCOMES

Reportable outcomes from this training endeavor are described below.

A. Manuscripts by the Program's six (6) original Fellows:

1. Sherry Crump, M.D., M.P.H.:
   a. "Barriers to Screening Mammography Utilization Among Black Women at Grady Memorial Hospital." Submitted to Journal of the National Medical Association.
   b. Promotion of heathy eating habits in children (letter). J Pediatrics 1995; 126:850-851.

2. Monsunmola George-Taylor, Ph.D.: "Electromagnetic Field Exposure to and The Occurrence of Breast Cancer in Women." No Submission.

3. Tony Highshaw, M.D: No manuscript.

4. Vanessa Parker, Ph.D.:
   a. "The Effect of Ethnic Identification on Cigarette Smoking Initiation Among Adolescents," Journal of Ethnicity & Health, June 1998
   b. "Correlates of Breast Cancer Screening Among African American female residents of An Urban Public Housing Community - A Pilot Study."- In preparation.
   c. Empirical Development of Brief Smoking Prevention Videotapes which Target African-American Adolescents. International J of Additions 1995:30 (9): 1141-1164.

5. Ling Wu, Ph.D.:
   a. Cancer Rate Differentials Between Blacks and Whites in Three Metropolitan Areas: A 10 - Year Comparison J of the National Medical Association, (1998) vol. 90, #7, 54-60.
   b. "Recent Trends in Breast Cancer Incidence Among Black and White Women in Tennessee, 1989-1998." -Being reviewed for publication (See-Appendix B1).
   c. "Breast Cancer Mortality among White and Black Women in Tennessee: A fifteen year trend"- In preparation (See Appendix B2).

6. Kangman Zhu, M.D., M.P.H., Ph.D., et. al.
   a. Estrogen Receptor Status of Breast Cancer: A Marker of Different Stages of Tumor or Different Entities of the Disease. Medical Hypothesis (1997) vol. 49, 69-75.
   b. Methyl-deficient diets, methylated ER genes and breast cancer: an hypothesized association. Cancer Causes Control (1998) Dec. (9): 615-20.

There were no manuscripts by the replacement Fellows.

B. Abstracts by the Program's original six (6) Fellows*:

Crump, Sherry R., et. al.:

1. "Barriers to Screening Mammography Utilization Among Urban African-American Women." Era of Hope. DOD Breast Cancer Research Program, The Renaissance Hotel, Washington, D.C., October 31-November 4, 1997.
2. "Barriers to Screen Mammography Utilization among Inner-City Black Women." American Public Health Association Annual Meeting, New York, NY, November 1996.
3. "Barriers to Screen Mammography Utilization among Inner-City Black Women. Association of Health Services Research," Washington, D.C., June 1997.

Parker, Vanessa C.: "Correlates of Breast Cancer Screening Among African American Female Resident of An Urban Public Housing Community: A Pilot Study." Era of Hope. DOD Breast Cancer Research Program, The Renaissance Hotel, Washington, D.C., October 31-November 4, 1997.

* Aaron Banks (a Replacement fellow): "Breast Cancer Survival Among African American Women" Multi-Cultural Aspects of Breast Cancer Etiology Workshop, Washington, D.C., March 17-19, 1999.

C. Presentations:

Vanessa Parker, Ph.D., provided a presentation entitled, "Breast cancer screening practices among urban African American Women," at The Nuts and Bolts of Building Breast Cancer Partnerships Conference, sponsored by the Los Angeles Partnership for Progress, Breast Cancer Early Detection Program. Los Angeles, California, January 31 - February 1, 1997.

Anthony Kingsley, M.D., was given 10% release time as a Program Fellow, and offered presentations to internists and family physicians, on cancer and nutrition, drawing upon data he assembled with Program support. The presentations took place on site at the King-Drew Medical Center.

Tsega Habte, Pharm.Dr, provided breast health lectures to both students of the King-Drew Magnet High School of Medicine and Science, pre-baccalaureate students of the College of Allied Health, and to a group of teenagers at a community church.

It should be noted that all of the original fellows presented abstracts of their work at annual DMMCCC conferences until the discontinuation of the center.

D. Degrees obtained that were supported by this award include:

Vanessa Parker, Ph.D., was supported as a fellow for roughly twelve months before she obtained the doctorate degree. During the first year, she successfully combined her academic pursuits and Manpower Development Program's research requirements.

E. Informatics

Dr. Ida-Jean Davis developed a breast health outreach program aimed at increasing knowledge about breast cancer prevention and control.

Four of the replacement fellows concentrated the development and evaluation of a Breast Education Program for Teens. The databases were developed to include details of anatomy and function of the breast, abnormalities of breast structure and the techniques of breast examination. Due to unforeseen problems, results from their project will be submitted within the next 60 days.

F. Applications requesting funding in support of the Fellows research based on work supported by this award are described below:

Dr. Kangman Zhu, was successful in his attempts to obtain research support through the Department of Defense:

a. An Intervention study on Screening for Breast Cancer Among Single African American Women Aged 65 and Older-DAMD17-96-1-6271
b. Breast Cancer and Risk Factors Among African American Women Aged 20-54 - A Case Study According to Estrogen Receptor Status-DAMD16-98-1-6270.
c. Methyl-deficient diets, and risk of breast cancer among African-American women*
d. Breast Cancer Training Program at Meharry Medical College*-Dr. Zhu serves as Co-investigator and Dr. Levine, one of our mentors, is Principal Investigator.

* Grant is funded by the Department of Defense.

Sherry Crump, M.D., M.P.H. received extramural funding for her project from the Agency for Health Care Policy and Research-HS07400-05.

Aaron Banks obtained an NIH Young Investigator Award that he will begin in January 2000.

Vanessa C. Parker, Ph.D., was awarded extramural funding from the Los Angeles County Breast Cancer Early Detection Program to conduct an breast education intervention study. She submitted applications to the following agencies: 1.) "The Sexual Side Effects of Breast Cancer Treatments Among African American Women," American Cancer Society, January 31, 1997, not funded; 2.) "The Sexual Side Effects of Breast Cancer Treatments," The Susan G. Komen foundation, May 15, 1998, not funded; and 3.) "African American Women at Risk for Breast Cancer: Factors Influencing Genetic Counseling," Queen of Angeles Presbyterian Hospital, June 1998, not funded.

Carolyn Rowley, M.S., submitted an unsuccessful proposal to the Susan G. Komen Foundation, Summer, 1997.

Dr. Wu submitted a proposal to the Susan. B Komen Foundation and is currently awaiting results.

G. There were significant achievements in the area of employment opportunities for fellows supported by this award. The following is the names and locations of our former regular Fellows who obtained professional positions during or upon leaving the Program:

1. Sherry Crump, M.D., M.P.H., is an Assistant Professor of Preventive Medicine, Morehouse School of Medicine, Atlanta, GA.

2. Mosunmola George-Taylor, Ph.D., is Associate Professor of Allied Health, School of Allied Health, Clark-Atlanta University, Atlanta, GA.

3. Tony Highshaw, M.D., is a Research Fellow, studying molecular aspects of prostate cancer, at the University of Southern California, Los Angeles, CA.

4. Vanessa Parker, Ph.D., is a new mother and not known to be currently employed, but previously has affirmed her intention to resume a career in research.

5. Ling Wu, Ph.D., is an Assistant Professor of Internal Medicine at the Meharry Medical College.

6. Kangman Zhu, M.D., M.P.H., Ph.D., is Associate Professor of Family and Preventive Medicine, Meharry Medical College, Nashville, TN.

7. Carolyn Rowley, M.S. is a research fellow at the University of California, Los Angeles, CA.

8. Anthony Kingsley, M.D., is Assistant Professor of Internal Medicine, Charles R. Drew University of Medicine & Science, Los Angeles, CA

9. Tsega Habte, Pharm.Dr. , is Instructor for the Department of Internal Medicine, Charles R. Drew University of Medicine & Science, Los Angeles, CA. She desires to continue working in breast cancer research (See Appendix E).

10. Lori Carter was retained by Drew University as a Research Assistant.

CONCLUSIONS

Overall this grant has been of great benefit. Immediate benefits include an increase in the number of projects, publications and researchers addressing issues relevant to cancer in African-Americans, especially breast cancer. In addition, the grant laid the foundation for a funded institutional breast cancer training grant at Meharry Medical School. Obstacles toward achieving some of the objectives were related to the loss of funding for the DMMCCC because the multi-institutional structure of the award provided necessary resources and promoted discussions across institutional boundaries pertaining to breast cancer research and African-Americans.

We believe that collaborative training programs among minority institutions can expand the pool of cancer control and prevention investigators addressing issues relevant to underserved groups and can enhance breast cancer research at minority institutions. The success of such collaborations appears to be related to obtaining adequate and stable infrastructure support. Such efforts should ultimately contribute to the reduction in the overall morbidity and mortality from breast cancer among African-American females. Our experiences with this novel manpower development program encourage us to support this mechanism and similar efforts.

Appendix - A

NAME	POSITION TITLE
>Aaron Banks	>Research Fellow

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	YEAR(s)	FIELD OF STUDY
>UCLA School of Medicine - Los Angeles, CA	>	1995-present	>
Loyola Marymount University - Westchester, CA	B.S.	1995	Biology

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

>Awards and Honors

1997 Certificate of Distinction for Secretarial Service, Student National Medical Association – UCLA/Drew Chapter

1996 Student National Medical Association – UCLA/Drew Chapter Secretary

1995 Thomas D. Pitts Award of Biology for Academic Accomplishments at Loyola Marymount University

1995 Gertrude Rivers Robinson Award for Academic Accomplishments at Loyola Marymount University

1994 Charles R. Drew Award for Academic Accomplishments at Loyola Marymount

1993 MARC/HURT Student Representative for the site visit of Mrs. Clinton to California

Research Experience

Summer 1996 Research Fellow, Laboratory of Cardiovascular Science – Preceptor Edward Makata, M.D. NIH/NIA (National Institutes of Health/ National Institute of Aging)

Summer 1994 MARC/HURT fellow in the molecular neurobiology laboratory of John Kusiak, Ph.D., NIH/NIA. Activity of the NMDARJ Promoter in Neuronal SHSY5Y Cell Line

6/1993-1995 Molecular Biology research in the areas of Gestational Diabetes, Sickle Cell Anemia in the laboratories of Jayduff Vadgama, P.D. and of Steven Taylor, M.D. at Charles Drew University of Medicine and Science

Publications/Abstracts:

Taylor, S., Shacks, S., Mitchell, R., Banks, A. *Serum Interleukin –6 Levels in the Steady Scare of Sickle Cell Disease.* Journal of Interferon and Cytokine Research 1995 (15) 361 3.

Kusiak, J., Bai, G., Banks, A. *Activity of NMDARI promoter in Neuronal SHSY5Y Cell Line.* Summer 1994.

Professional Societies

1997 – present The Loyola Marymount Scientific Society

1997 – present National Medical Association, Associate Member

1995 – 1999 Student National Medical Association

BIOGRAPHICAL SKETCH

Give the following information for the key personnel and consultants and collaborators. Begin with the principal investigator/program director. Photocopy this page for each person.

NAME	POSITION TITLE
Bernard, Louis J.	Director Drew-Meharry-Morehouse Consortium Cancer Ct.

EDUCATION *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Dillard Univ, New Orleans, LA	B.A.	1946	Biology
Meharry Medical College, Nashville,TN	M.D.	1950	Medicine
University of Rochester, Rochester,NY	Fellowship	1953-54	Surgical Research

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Key personnel include the principal investigator and any other individuals who participate in the scientific development or execution of the project. Key personnel typically will include all individuals with doctoral or other professional degrees, but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the scientific development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. DO NOT EXCEED TWO PAGES.

PROFESSIONAL EXPERIENCE:

August 1990 - Present	Director, Drew/Meharry/Morehouse Consortium Cancer Center
1990 - 1994	P.I. National Black Leadership Initiative on Cancer
1990 - Present	Distinguished Professor of Surgery Emeritus, MMC
Oct. 1987 - June 1990	Dean, School of Medicine
1988 - 1990	Vice-President for Health Services, Meharry/Hubbard Hospital
Jan. 1987 - Oct. 1987	Interim Dean, SOM
1973 - 1987	Professor and Chairman, Dept. of Surgery, Meharry Medical College
1974 - 1981	Associate Dean, School of Medicine, MMC
1969 - 1973	Associate Professor & Vice-Chairman, Dept. of Surgery, MMC
1959 - 1969	Private Practice of Surgery, Oklahoma City, OK
1959 - 1969	Clinical Assistant to Clinical Assistant Professor of Surgery, University of Oklahoma School of Medicine, Oklahoma City, OK
1958 - 1959	Clinical Fellow, American Cancer Society and Instructor in Surgery, MMC
1957 - 1958	Surgery Chief Resident, Hubbard Hospital
1956 - 1957	Surgery Resident, Memorial Hospital, New York, NY
1954 - 1956	Surgery Resident, Hubbard Hospital
1953 - 1954	NCI-NIH Research Fellow-University of Rochester
1951 - 1953	Active Duty, U.S.A.R.-MC
1950 - 1951	Internship Hubbard Hospital, Nashville,TN

CERTIFICATIONS:

1980	Recertified, American Board of Surgery
1959	Certified, American Board of Surgery

HONORS:

Alpha Kappa Mu (College Scholastic Honor Society)
Kappi Pi (Medical School Honor Society)
Alpha Omega Alpha (Medical School Honor Society)
B.A. Degree-Magna Cum Laude
St. George Award-American Cancer Society-1985
Louis J. Bernard Neighbor for Life Award of the TN. Division of American Cancer Society-1992
National Humanitarian Award - American Cancer Society - 1993

SELECTED PUBLICATIONS:

Hahn, P.F., Carothers, E.L., Bernard, L.J., and Johnson, Marvin, Immunologic Approach to study of Treatment of Transmitted Leukemia in AK Mice. Federation Proceedings, Vol. 9, No. 1, March 1950.

Hahn, P.F., Skipper, H.E., Carothers, E.L., And Bernard L.J., Effect of Radioactive Colloidal Metallic gold in Treatment of "Acute" AK-4 Leukemia in Mice. Cancer 4: 634-636, May, 1951.

Bernard, L.J., Jefferson, W.C., and Hahn, P.F., Failure to Demonstrate in Vitro Lysis of Sensitized Guinea Pig Leucocytes By Dog Hemoglobin Antigen. Proceedings Society of Experimental Biology and Medicine, 80: 58-60, May 1952.

Bernard, L.J., Dutton, A.M., and Radakovich, M., Attempts to Influence Resistance to the Walker Carcinoma 256 By Administration of Thorium Dioxide (Thorotrast). Cancer Research: 15-18, Vol. 15, No. 1, January, 1955.

Bernard, L.J., Dutton, A.M., and Radakovich, M. The Effect of Thorium Dioxide (Thorotrast) on Metastases of the Walker Carcinoma 256 and the Relation of Tumor Size to Frequency of Metastases. Cancer Research, 15: 325-328, June, 1955.

Bernard, L.J., Royal, J.C., and Taylor, B.J. The Surgical Management of Carcinoma of the Pancreas. Journal of the National Medical Association, January, 1973.

Bernard, L.J., Allen M., Birchette, C., Royal, J., and Walker, M., Antigenicity of C3H Mammary Carcinoma in Isogeneic Hosts: Preliminary Studies. Journal of the National Medical Association, March 1973.

Scott, L.E., Bernard, L.J., Transitional Cloacogenic Carcinoma of the Anus and Rectum: Report of Three Cases. Journal of the National Medical Association, Vol. 71:507, May, 1979.

Freeman, H.P., Bernard, L.J., Matory, W., Smith, F.M., Whittico, J.J., Yancy, A.G., Sr., Bond, L.: Physician Manpower Needs of the Nation: Position Paper in the Surgical Section of the National Medical Association, Journal of the National Medical Association, 74:617-9, 1982.

Bernard, L.J.: Calling All Doctors: Colorectal Health Check Program. Journal of the Tennessee Medical Association, August, 77:489, 1984.

Bernard, L.J., Special Communication: Colorectal Health Check Program. Journal of the Tennessee Medical Association, August 1984.

Bernard, L.J., Colorectal Cancer, Professional Education Newsletter of the American Cancer Society. Vol. 15, Issue, May/June 1986.

Bernard, L.J., The Meharry Story: Boyd, McMillan, Hale and Walker. A Century of Black Surgeons, Edited by C. Organ, Jr., M.D. and M. Kosiba, R.N. Chapter 3, pp. 103-148. Transcript Press, 1987.

Bernard L.J. and Carter R., Surgical Oncology Education in U.S. and Canadian Medical Schools, Journal of Cancer Education, Vol. 3, No. 4, pp. 239-242, 1988.

Hargreaves, M.K., Ahemd, O., Semenya, K., Pearson, K., Pearson, L., Sheth, N., Hardy, R.E., Bernard, L.J. Nutrition and Cancer Risk: Assessment and Prevention Program Strategies for Black Americans in Minorities and Cancer (edited by Lowell Jones) Springer-Verlag, New York. Chapel 7: 77-94, 1989.

Haynes, M.A., Bernard, L.J., Drew/Meharry/Morehouse Consortium Cancer Center: An Approach to Targeted Research in Minority Institutions, Journal of the National Medical Association, June 1992; Vol. 84, No. 6, pp. 505-511.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.

Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
>Lori Carter	>Research Assistant

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	YEAR(s)	FIELD OF STUDY
Loyola Marymount University, Los Angeles, CA.	B.A	1/1996-12/1997	Biology

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

***Long Beach Mental Health**, FEMA Student Worker, May 1992 - September 1992. Performed various clerical task to maintain office organization.*

***Compton Unified School District**, Drugs Alcohol and Tobacco Education Mentor, June 1994 - August 1994. Organized events to educate the damages of substance abuse; Mentor, tutor and educator for at risk elementary students.*

***Loyola Marymount Chemistry Stockroom**, Lab Assistant II, September 1996 - June 1997. Prepare organic and inorganic solutions for laboratory.*

***Community Diagnostics Laboratory**, Laboratory Assistant, September 1996 - March 1998. Performed various test on specimens collected from medical clinics.*

***Little People's World of Communication**, Teacher, May 1,1998 - August, 1998. Provide speech therapy for children ages 18 months to three years in an early intervention program.*

***Specialty Laboratories**, Lab Assistant, August 10, 1998 - November 15,1998. Mass production of micro plates, manual and automated using Carl Creative System; preparation of reagents and buffers for in house use.*

>

Principal Investigator/Program Director *(Last, first, middle):* Shacks, Samuel James

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
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NAME	POSITION TITLE
Sherry R. Crump, MD, MPH	Research Fellow

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Virginia, Charlottesville, VA	B.A.	1981-85	Biology
University of Virginia, Charlottesville, VA	M.D.	1985-91	Medicine
Carolina's Medical Center, Charlotte, NC		1991-92	Internship-Pediatrics
Morehouse School of Medicine, Atlanta, GA		1992-94	Residency-Prev. Med.
Rollins School of Public Health, Emory, Atlanta	MPH	1992-95	Public Health

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. DO NOT EXCEED TWO PAGES.

PROFESSIONAL EXPERIENCE:

1987-1988 Project Bayon-Volunteered in a hospital for indigent inhabitants of Honduras, Central America
1992-1993 Atlanta Public School for the Special Olympics Program - Volunteer Physician
1992-1994 Georgia Nurses' Foundation Health Care for the Homeless Program - Volunteer Program
1992-Present Fulton County Health Department Teen Service Program - Staff Physician
1994-Present Drew/Meharry/Morehouse Consortium Cancer Center - Breast Cancer Prevention and Control Research Fellowship

HONORS AND MEMBERSHIPS:

Summer '92 Treatment and Follow-up Compliance of Atlanta Soviet Refugees - Georgia Department of Human Resources, Office of Rural Health
Spring '93 Emory Undergraduate Student Sexual Behavior Survey - Rollins School of Public Health Emory University
Fall '93 Domestic Violence Survey - Georgia Department of Human Resources, Division of Public Health, Epidemiology Branch
Spring '94 Gonorrhea Trends - Richardson Health Center, STD Clinic, 1990-1993, Dekalb County Board of Health, Georgia

SELECTED PUBLICATION:

Crump, S.R. Promotion of Health Eating Habits in Children (letter to the editor) J Pediatric 1995; 126;850-851

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
> Ida Jean Davis, BA, PA, BS, DC, PhD (c)	Assistant Professor of Medicine, Drew University

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	YEAR(s)	FIELD OF STUDY
University of California at Riverside	B.A	1975	Psychobiology
Charles R. Drew University	P.A	1977	Family Medicine
Cleveland Chiropractic College	B.S.	1982	Human Biology
Cleveland Chiropractic College	D.C	1984	Chiropractic Medicine
University of Southern California	Ph.D.	pending	Preventive Medicine

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

1975-76 Chemistry Laboratory Assistant, Kaiser Foundation, North Hollywood, Ca
1984-85 Chiropractic Clinician, Cleveland Chiropractic College, Los Angeles, CA
1991-96 Research Assistant, USC School of Medicine, Institute of Prevention and Research, James Dwyer Ph.D., Los Angeles, CA
1995 Provider Education Consultant, Breast Cancer Early Detection Program

Honors
1991 NHLBI research Supplement Award
1992 NIH Prevention cardiology Academic Award
1993 TRDRP Research & Training Award
1994 NHLBI research Supplement Award

Publications
Dwyer, J.H., Curtin, L.R., Dais, I.J., Dwyer, K.M., Feinleib, M. The Black-White Difference in the Relationship between Dietary Calcium and Blood Pressure in the Nhanes I Epidemiologic Follow up. Circulation 1992;85:867. Paper presented at the 32nd Annual Conference on Cardiovascular Disease Epidemiology.

Dwyer, D.H., Dwyer K.M., Scribner, R.A., Ping, S., Li, L., Nicholson, L.M., Davis, I.J., Hohn, A.R. Calcium Supplementation and Blood Pressure in African American Youth. Lancet Magazine. Submitted.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
Mosunmola Alaba George-Taylor	Assistant Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Lagos, Akoka, Lagos, Nigeria	B.S.	1975	Chemistry
Atlanta University, Atlanta, GA	M.S.	1982	Physical Chemistry
Georgia Institute of Technology, Atlanta, GA	M.S.	1987	Atmospheric Chemistry
Clark-Atlanta University, Atlanta, GA	Ph.D.	1994	Biology

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. DO NOT EXCEED TWO PAGES.

PROFESSIONAL EXPERIENCE:

1990-Present	Assistant Professor, Chemistry Department, Clark Atlanta University, Atlanta, GA
1991-1994	Research Technician, Department of Biological Sciences, Clark Atlanta University, Atlanta, GA
1993-1994	Teaching Assistant, Clark Atlanta University, Atlanta, GA
1991-1994	Biology and Chemistry Instructor, Clark Atlanta University summer programs
1992-1993	Chemistry Lab Instructor, Spelman College, Atlanta, GA
1991-1992	Science Instructor, Clark Atlanta University Weekend Programs Saturday Science Academy
1992	Instructor of Hands on Laboratory Procedures in Physical Science Kindergarten through K8 Teachers in Atlanta Public School System.
1988-1990	Research Assistant, Dolphus E. Milligan Science Research Institute, Clark Atlanta University Atlanta, GA
1989	Laboratory Instructor, Chemistry Department, Clark Atlanta University, Atlanta, GA
1982-1988	Research Assistant, School of Geophysical Sciences, Georgia Institute of Technology, Atlanta, GA
1980-1982	Research Assistant, Chemistry Department, Atlanta University, Atlanta, GA
1977-1980	Chemistry Teacher, Ikeja Grammar School, Oshodi, Lagos State, Nigeria
1975-1976	Chemistry Teacher, Lagos City College, Yaba, Lagos State, Nigeria
1972	Laboratory Technician, Lagos University Teaching Hospital, Idi-Araba, Lagos State, Nigeria

HONORS AND MEMBERSHIPS:

Member os the American Society of Cell Biology (ASCB).
Member of the Federation of American Society of Experimental Biology (FASEB)

PROFESSIONAL CONFERENCES AND ACTIVITIES:

Drew-Meharry-Morehouse Cancer Consortium Symposium, Nashville, Tennessee, 1995
American Society of Cell Biologists Conference, San Francisco, California, 1994
American Society of Cell Biologists Conference, New Orleans, Louisiana, 1993
American Society of Cell Biologists Conference, Denver, Colorado, 1992
American Society of Cell Biologists Conference, Boston, Massachusetts, 1991
American Society of Cell Biologists Conference, San Diego, California, 1990
National MBRS (Minority Biomedical Research Symposia) Conference Atlanta, Georgia, 1993
National MBRS Conference, Washington, D.C., 1991
National MBRS Conference, Nashville, Tennessee, 1990
American Chemical Society 18th Regional Meeting, Bowling Green, Ohio, 1986

Successfully completed a short course on "Remote Sensing of the Earth and Atmosphere", conducted by the Department of Continuing Education, Georgia Institute of Technology, Atlanta, GA May 13-14, 1985

Successfully completed a short course on the "Introduction of the Problems of Acid Rain", conducted by the Department of Continuing Education, Georgia Institute of Technology, Atlanta, Ga November 7-10, 1984

SELECTED PUBLICATION:

Low Temperature Infrared Spectrum of Chlorine Nitrate and Evidence for the Existence of ClOONO. Journal of Physical Chemistry (1983), 87, 1091.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
>Tsega Habte, Pharm. MSc.	

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	YEAR(s)	FIELD OF STUDY
University of Babesh Boyayi, Cluj-Napoca, Romania	M.Sc.	1975-81	Pharmacy
University of Southern California, Los Angeles, CA		1985-86	Clinical Pharmacy Program

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

Memberships

International Society of Hypertension in Blacks, 1992
Member, Eritrean Medical Association, American Region, 1986
Member, American Association for the Advancement of Science, 1988
Member, Society of Gastroenterology, 1985

Supervision and Instruction of Students

Robert Lara

Won 2nd place in the county of Los Angeles Science Fair
Kaiser-Permanente award
Scholarship – Connecticut - summer

Kristine Ray

Won 3rd place in the State and 2nd place in the County of Los Angeles Science Fair

Presentations

Bright-Asae, P., Habte, T., Giannikopoulos.: Stimulated Acid Secretion and Altered Mucosal Permeability Induced Duodenal Ulcers [DU] in the Rat. Clinical Research, February 1990.

Bright-Asare, P., Enrique, C., Habte, T., Giannikopoulos, I.: Duodental Ulcer Induced by Infusion of Acidified Ethanol [ETOH] into the Rat Duodenal are Mediated by Altered Mucosal Permeability in the Presence of HCL.

Bright-Asare, P., Enrique, C., Giannikopoulos, I., Habte, T.: Experimentally Induced Changes in the Rat Duodenal Mucosal Permeability Enhances Duodenal Ulcers [DU] Formation by Hydrochloric Acid.

BIOGRAPHICAL SKETCH

Give the following information for the key personnel and consultants listed on page 2. Begin with the Principal Investigator/Program Director. Photocopy this page for each person.

NAME
Margaret Kirkcaldy Hargreaves

POSITION TITLE
Assistant Professor,
Department of Medicine

EDUCATION

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
MacDonald College (McGill U), Quebec	B.Sc (H.Ec)	1959	Nutr. & Dietetics
Royal Victoria Hosp., Montreal, Quebec	P.Dt.	1960	Dietetics
Univ. of California, Berkeley, CA	M.S.	1963	Community Nutrition
Univ. of Toronto, Toronto, Ontario	Ph.D.	1970	Nutrition
Concordia Univ., Montreal, Quebec		1977	Admin. Courses

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. DO NOT EXCEED TWO PAGES.

EXPERIENCE

1960 - 62 Dietitian-Nutritionist, Department of Dietetics, Royal Victoria Hospital, Montreal.
1964 Public Health Nutritionist, Ontario Ministry of Health, Ontario.
1964 - 65 Research Assistant, Research Institute, Toronto Sick Children's Hospital, Toronto, Ontario.
1970 - 72 Chief, Dietetic Internship Program, Dept. of Dietetics, Montreal General Hospital, Montreal.
1972 - 75 Assistant Professor, Nutrition/Dietetics, Department of Home Economics, Mount Saint Vincent University, Halifax, Nova Scotia.
1975 - 77 Assistant Professor, Nutrition, Department of Dietetics, University of Ottawa, Ottawa, Ontario.
1980 - 81 Associate Investigator, Nutrition Research Cooperative Agricultural Research Program and the Department of Home Economics, Tennessee State University, Nashville, Tennessee.
1981 - 86 Program Development Specialist, Office of the Academic Vice-President & Adjunct Principal Investigator, CARP, Tennessee State University; Assistant Professor, Department of Medicine/Surgery, Meharry Medical College, Nashville, Tennessee, Director, Clinical Nutrition Program.
1986 - 88 Planning Director and Nutrition Investigator, Cancer Control Research Unit, Meharry Medical College, Nashville, Tennessee
1989 - 90 Director, Diet and Nutrition Development Program, Cancer Consortium.
1990 - 91 Director, Research Development, Institute on Health Care for the Poor and Underserved.
1990 - Assistant Professor, Department of Medicine.

HONORS

MacDonald College Bursary, 1957 - 59
Teaching Assistantship, University of California, Berkeley, 1962 - 63
University of Toronto Fellowships, 1965 - 67
National Research Council Scholarship, 1967 - 68
Medical Research Council Studentships, 1968 - 70

PUBLICATIONS AND PRESENTATIONS

Kirkcaldy MR, Beaton, GH. Formation of slow alpha2-globulin in the pregnant rat. Can. J. Physiol. Pharmacol. 55:496-507, 1977.

Final Report Nova Scotia Firefighter Health and Fitness Study: Results of Intervention, Department of National Health and Welfare, Canada, 1977.

Kirkcaldy-Hargreaves M, Casey A, Hogan E, Mulroney R. Utility of an on-line computer system in a clinical setting for nutrient intake analyses. J. Can. Diet. Assn. 41:112-127, 1980.

Kirkcaldy-Hargreaves M, Lynch GW, Santor C. Assessment of the validity of four food models. J. Can. Diet. Assn. 41:102-110, 1980.

Talk to Surgeons at The National Medical Association on "Nutrition Assessment". July, 1982, San Francisco, CA.

Hargreaves MK. Dietary Patterns and Nutritional Status: Implications for Cancer Risk in U.S. Minorities - Blacks and Hispanics. Prepared for the Division of Cancer Prevention and Control, NCI. 1985.

Technical Contributor, Report of the Secretary's Task Force on Minority Health Volume III: Cancer, January pp 1-103.1986.

Hargreaves MK, et al. Changing community behaviors: a model for program development and management. Health Values 10(6):34-43, 1986.

Hargreaves MK, et al. "Diet, Nutritional status, and cancer risk in American Blacks. Nutri. Cancer 12(1):1-28, 1989.

Hargreaves MK, et al. The body mass index as a predictor of pulmonary function in healthy Black Americans. Nutri. Res. 8: 875-888, 1988.

Hargreaves MK, Ahmed O, Semenya K, Pearson L, Sheth N, Hardy RE, Bernard LJ. Nutrition and Cancer Risk: Assessment and Preventive Program Strategies for Black Americans in Cancer and Minorities, edited by Lowell Jones. Springer-Verlag, New York. Chapter 7: 77-94. 1989

Hardy RE, Hargreaves MK. Cancer Prognosis in Black Americans; A Mini Review. JNMA (July 1991).

Hargreaves, M.K Ethnic differences in food consumption in the U.S:Relevance to cancer prevalence. In: Diet, Nutrition and Cancer, proceedings of the Fourth Annual Nutrition Workshop, edited by Cyril O. Enwonwu, Meharry Medical College, Nashville, TN October, 1990. In press.

Hargreaves, M.K "Targeting nutrition messages to Black Americans", presented at the Ninth Annual Symposium of the Department of Health and Human Services on Nutrition and Minority Population: Tailoring Communication Strategies, Washington, DC. March 14 1990.

Hargreaves, M.K "Socio-cultural influences on Black American food habits from slavery until now", presented at the Conference on Afro-American Culture and History for the Nashville and Tennessee Historical Commissions, held February, Tennessee State University, Nashville, TN. 1989.

Hargreaves, M.K "The Meharry Coalition: A Comprehensive Approach toward a Healthier Lifestyle", presented at the Eight Annual Seminar on Prevention and Control of Cardiovascular Disease and Cancer by the Department of Internal Medicine, Meharry Medical College, May 21-22, 1987.

Hargreaves, M.K et al. Teatifiers for Chapters on Racial and Ethnic Minorities Settings (p. 51-63); Health Promotion Disease Prevention in Minority Settings (p.82-98); Tobacco (p. 99-103); and Cancer (p.186-190) in Healthy People 2000: Citizens Chart The Course, edited by Stoto M. et al., Institute of Medicine, National Academy Press, Washington D.C., 1990.

Bernard, L.J., Hargreaves, M.K.et al. Final Report: Diet, Smoking, Blood Pressure Control in Nashville Blacks, Submitted to the Office of Minority Health. DHHS, 1989.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.

Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
>Melanie Hill	>

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	YEAR(s)	FIELD OF STUDY
University of California, Berkeley, CA	B.A	1958-90	Economics
CSU, Dominquez Hills –Carson, Ca	Credentials	1994-97	Teaching

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

1993-present *Teacher, Washington Preparatory High School, Los Angeles, CA*
Co Chair, Math Department, 1995-1997
Leadership Advisor, 1996-1998

1990-1992 *Staff Aide, Los Angeles Trade-Technical College, Los Angeles, CA*
Managed student affairs for Contact Education Classes

>

BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
>Ralph Highshaw	>Research Fellow

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	YEAR(s)	FIELD OF STUDY
>USC/LAC Medical Center - Los Angeles, CA	>	1993-1996	>Surgical resident
University of Southern California,- CA	M.D	1988-1993	
Loyola Marymount University - Westchester, CA	B.S.	1979-1983	Biology

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

>Academic Awards and Honors

Medical School - Honors: Pediatrics, General Surgery

Undergraduate - Member of Sigma Xi National research Honor Society 1987-1989
Black Student Association Award for Academics

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
>Todd Huffman	>

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	YEAR(s)	FIELD OF STUDY
Southern University, Baton Rouge, LA	B.A.	1984-87	Political Science
Southen University Law Center	Juris Doctor	1987-90	

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

1997-present	Encourage minority women to enhance their quality of life through better nutrition and health care
1995-1997	worked with Volunteers of America developing a program to help foster the relationship between health service providers and residents of housing projects
1992-94	Judicial Law clerk Louisiana State Court, Gretna, LA
1990 summer	Participant in Operation Crossroads Africa, Freetown, Sierra Leone. Helped develop water treatment center which helped residents combat water borne illnesses.
1990-91	Substitute Teacher East Baton Rouge Parish Schools, Baton Rouge, LA

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
>Anthony Kingley, MD	Assistant Professor of Medicine,Drew University

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	YEAR(s)	FIELD OF STUDY
Rutgers, The State University of New Jersey, New Brunswick, New Jersey	B.S.	1982-85	Biochemistry
Robert Wood Johnson Medical School University of Medicine and Dentistry of New Jersey, Piscataway, New Jersey	M.D.	1987-92	Medicine
University of Medicine and Dentistry of New Jersey New Jersey Medical School, Hackensack Program, Hakensack, New Jersey		1993-96	Internal Medicine

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

1998-present Faculty, Division of Geriatrics, Drew University
1997-98 Geriatrics fellowship, Drew University, Los Angels, CA

1997 Board Certifications: Internal Medicine

Honors and Awards

Recipient – Rutgers Alumni Academic Scholarship – Nominee
President - East Coast Biochem Society
Recipient – New Jersey Medical Society Scholarship Award
President – Student National Medical Association – Camden

Publications

Watson, M., Kingsley, A. Muscarinic receptor subtype. UMDNJ Research Publications, 1998.

Abstracts

Joaquin, A., Kingsley, A., Gollapudi. Expression of Fas and Bcl2 in African American Elderly Population. 51st Annual Scientific Meeting Gerontologic Society of America. Philadelphia, PA

BIOGRAPHICAL SKETCH

Give the following information for the key personnel and consultants and collaborators. Begin with the principal investigator/program director. Photocopy this page for each person.

NAME	POSITION TITLE
Robert S. Levine	Co-Investigator

EDUCATION (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Columbia University, NY, NY	B.A.	1963	Pre-Med.
Bowman Gray, Winston-Salem, NC	M.D.	1968	Medicine
Bowman Gray, Winston-Salem, NC	Intern	1969	Pediatrics
University of Kentucky, Lexington, KY	Resident	1972	Preventive Medicine

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Key personnel include the principal investigator and any other individuals who participate in the scientific development or execution of the project. Key personnel typically will include all individuals with doctoral or other professional degrees, but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the scientific development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. DO NOT EXCEED TWO PAGES.

Employment:

1972-74 Preventive Medicine Officer, Fort Hood, TX
1974-76 Physician II, Dade Co. Health Dept., Miami, FL
1976-86 Asst.-Associate Professor and Vice Chairman, Dept. of Epidemiology and Public Health, University of Miami, School of Medicine, Miami, FL
1986-88 Director of Epidemiology and Biostatistics, Nassau Co. Dept. of Health, Mineola, NY
1988-91 Director of Community and Preventive Medicine, Our Lady of Mercy Medical Center, Bronx, NY
1991 Associate Medical Director, Quality Assurance, Kings Co. Hospital Center, Brooklyn, NY
1992-Present Professor, Department of Family and Preventive Medicine, Meharry Medical College, Nashville, TN
1993-Present Principal Investigator, MEDTEP Research Center,
Associate Director for Research, Institute on Health Care for the Poor and Underserved,
Chair, Editorial Board of Journal of Health Care for the Poor and Underserved, Meharry, Medical College,
Interim Chair, Department of Family and Preventive Medicine, Meharry Medical College, Nashville, TN

Honors and Awards:

1972 Army Commendation Medal
1975 Fellow, American College of Preventive Medicine
1988 Member, American College of Epidemiology

Publications: (1990-Present)

1. Report of a WHO/UNEP Working Group. Public Health Impact of Pesticides Used in Agriculture. Geneva and Nairobi: WHO/UNEP. 1990.
2. Zeigler RG, Brinton LA, Warnecke R, Hamman RA, Lehman H, Levine RS, Stolley P.Rosenthal AC, Trumbell AC, Hoover RN. "Diet and the Risk of Invasive Cervical Cancer Among White Women in the United States." Amer.J.Epidemiol. 132:432-445 1990.
3. Levine RS, Hersh CB, Hodder RA. "Historical Patterns of Pesticide Epidemiology Research." Epidemiology. 1:181-184. 1990.
4. Jones CJ, Brinton LA, Hamman RF, Stolley PD, Lehman, HF, Levine RS. "Risk Factors for In Situ Cervical Cancer: Results from a Case-control Study." Cancer Research 50:3657-3662. 1990.
5. Hidesheim, A, Brinton LA, Mallin K, Lehma HF, Savitz DA, Levine RS. "Barrier and Spermicidal Contraceptive Methods and Risk of Invasive Cervical Cancer. Epidemiology. 1:266-272. 1990.
6-8. The Selected Cancers Cooperative Study Group. The Association of selected cancers with service in the US military in Vietnam. I. Non-Hodgkin's Lymphoma; II Soft Tissue and Other Sarcomas; III. Hodgkin's Disease, Nasal Cancer, and Nasopharyngeal Cancer. Arch. Intern Med. 150:2473-83; 2492-95; 2495-2505 1990

Biographical Sketch: Robert S. Levine, M.D. (Page 2)

9. Levine RS. "Recognized and Possible Effects of Pesticides in Humans." Chapter 7 of Hayes WJ Jr., and Walls EN. Handbook of Pesticide Toxicology. Vol. I. San Diego: Academic Press. 1991. pp. 275-360.
10. Zeigler RG, Jones CJ, Brinton LA, Norman SA, Mallin K, Levine RS, Lehman HF, Hamman RF, Tremble AC, Rosenthal J, Hoover RN. "Diet and Risk of In Situ Cervical Cancer Among White Women in the United States." Cancer Causes and Control. 2:17-29. 1991.
11. Lassise DH, Savitz DA, Hamman RF, Baron AE, Brinton LA, Levine RS. "Invasive Cervical Cancer and Intrauterine Device Use." Int.J.Epidemiol. 20:865-70. 1991.
12. Levine RS and Doull J. "Global Estimates of Pesticide Mortality and Morbidity." Rev.Env.Contam.and Toxicol. 129:29-50. 1992.
13. Levine RS and Dolin P. "Pregnancy and Breast Cancer: A Possible Explanation for the Negative Association." J.Med.Hypoth. 38:278-283. 1992.
14. Levine, RS, Hennekens, CH, Jesse, MJ. Development of Blood Pressure in a Population-Based Cohort of Newborn Twins. BMJ. 1994; 308:298-302.
15. Levine, RS. "Practicing Without a Net." TIKKUN, Sep/Oct, 1995:65-73.
16. Levine, RS, Zhu, K, Braun, E, Baum, M, Gnepp, D. "Population-based Case Control Study of the Relationship Between Cigarette Smoking and Nasal Naso-pharyngeal Cancer. Cancer Causes & Control. In press.

Abstracts and Presentations (*Presented): 1990 to Present

*1. Fojas, A, Feldman, G, Hauben, M, Levine, R, Hodder, R, Marino, W. The Effect of Increased Attending supervision and Educational Intervention on the Practice of Influenza Vaccination by Medical Residents on Hospital Outpatients. Am. Rev.Resp. Dis. 141:A603. 1990.
2. Futterman, N, Zervis, G, Inba-Vazhau, G, Gupta, V, Levine RS, Hodder, RA, Ciaramida, SA. Near Misses in Thromboembolytic Therapy: The Need for Timely Delivery. Clin. Res. 38:703A. 1990.
*3. Levine, RS and Dolin, P. Halogenated Hydrocarbons and Human Cancer: A Reconsideration. International Society for Environmental Epidemiology. Buffalo, NY. June, 1991.
*4. Levine, RS, Kazi, I, Dolin, P, Futterman, N, Marino, W, Hodder, RA. Towards the Integration of Curative and Preventive Services for Internal Medicine Patients. American Public Health Association. Atlanta, GA. November, 1991. Abstracts:253.
*5. Levine, RS, Kazi, I, Dolin, P, Futterman, N, Marino, W, Hodder, RA. Integrating maternal preventive services at a well baby clinic. American Public Health Association. Abstracts:236.
*6. Levine, RS, Doull, J. Global Estimates of Pesticide Mortality and Morbidity. American Chemical Society. San Francisco, CA. 1992.
*7. Levine, RS. Medical effectiveness and quality assurance. Invited Lecture. Uniformed Services University of the Health Sciences. June 1993.
*8. Torres, T, Levine, RS, Carter, R. Intervention to increase the proportion of patients whose physicians advise regular physical activity. Prevention 94. Atlanta, GA. 1994.
9. Apollis, K, Nelson-Knuckles, B, Tate, H, Levine, RS. A family systems approach to the management of hypertension in African-Americans. Accepted for presentation. National Medical Association. August, 1994.
10. Turner, EA, Levine, RS, Federspiel, CF, Nelson-Knuckles, B, Wolff, S. Pharmacy payments for sickle cell diseases: Increases from 1980 to 1992. Submitted for presentation to APHA 123drd Annual Meeting, San Diego, CA. October, 1995.
*11. Levine, RS, Zhu, K, Braun, E, Baum, M, Gnepp, D. Population-based Case Control Study of the Relationship Between Cigarette Smoking and Nasal Naso-pharyngeal Cancer. Society of Epidemiological Research, Snowbird, UT. June, 1995.
12. Levine, RS, Zhu, K, Braun, E, Baum, M, Gnepp, D. Population-based Case Control Study of the Relationship Between Cigarette Smoking and Nasal Naso-pharyngeal Cancer. Am.J.of Epid. 131:S41, 1995.
*13. Zhu, K and Levine, RS. Population-based Case Control Study of the Relationship Between Cigarette Smoking and Liver Cancer, Society of Epidemiological Research. Snowbird, UT. June, 1995.
14. Levine, RS, Zhu, K, Braun, E, Baum, M, Gnepp, D. Population-based Case Control Study of the Relationship Between Cigarette Smoking and Primary Hepatic Cancer. Am.J.of Epid. 131:S61, 1995.

BIOGRAPHICAL SKETCH

Give the following information for the key personnel and consultants and collaborators. Begin with the principal investigator/program director. Photocopy this page for each person.

NAME	POSITION TITLE
PATRICIA MATTHEWS-JUAREZ, Ph.D.	ADMINISTRATOR

EDUCATION *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Fisk University, Nashville,Tn.	BA	1965-69	Psychology
N.Y. University, N.Y., N.Y.	MSW	1969-71	Community Org.
London University,LSE, London,Eng.		1970	Comp.Soc.Policy
Brandeis University, Waltham,MA	Ph.D.	1979-82	Social Policy

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Key personnel include the principal investigator and any other individuals who participate in the scientific development or execution of the project. Key personnel typically will include all individuals with doctoral or other professional degrees, but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the scientific development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. DO NOT EXCEED TWO PAGES.

RESEARCH AND PROFESSIONAL EXPERIENCE

1976-1977 — Director, Social Welfare Policy Program
Department of Sociology
Hampton University, Hampton, Virginia

1977-1979 — Assistant Professor, Graduate School of Social Work
Norfolk State University, Norfolk, Virginia

1981-1983 — Director of Black Outreach Services
Worcester Youth Guidance Center, Worcester, Massachusetts

1983-1984 — Director of Outpatient and Inpatient Services
Central City Community Mental Health Center
Los Angeles, California

1984-1988 — Associate Director for Administration, Department of Family Medicine
Charles R. Drew University of Medicine & Science
Los Angeles, California

1985-Present — Assistant Professor
Department of Family Medicine
Charles R. Drew University of Medicine & Science
Los Angeles California

1988-Present — Administrator, Drew Meharry Morehouse Consortium
Cancer Center
Charles R. Drew University of Medicine & Science

COMMITTEES:

1985-Present	Member, University Faculty Council
1989-Present	Federal Reviewer, Division of Medicine, HRSA
1989-Present	Federal Reviewer, Federal Office of Minority Health
1990-1991	Federal Reviewer, Federal Office of Rural Health Policy
1990- Present	Co Chair, Board of Visitors, Federal Office of Rural Health
1990-1992	Planning Committee, Biannual Symposium of Cancer in Minority Population, M.D. Anderson Cancer Center, Dr. Lovell Jones, Organizer
1991-Present	Member, State Office of Manpower Planning and Development Policy Committee

Principal Investigator/Program Director (Last, first, middle): Shacks, Samuel James

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
Vanessa C. Parker	Department of Preventive Medicine

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of California - Sand Diego, San Diego, CA	B.S.	1982	Microbiology
California State University, Dominguez Hills, CA	M.A.	1989	Behavioral Sciences
University of Southern California	Ph.D.	1995	Preventive Medicine

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. DO NOT EXCEED TWO PAGES.

PROFESSIONAL EXPERIENCE:

11/93-Present Graduate Research Assistant, Drug Use and HIV-Risk Sexual Behaviors in Homeless Youth, Childrens Hospital Los Angeles, Division of Adolescent Medicine

07/93-Present Co-Principal Investigator, Adolescent Condom-Use Efficacy Among Urban Minorities, Charles R. Drew University of Medicine and Science

05/93-12/93 Project Manager, Gang Violence Prevention and Suppression Project, High-Risk Youth Project, Childrens Hospital-Division of Adolescent Medicine

06/92-12/93 Graduate Research Assistant, KCET/USC African American Smoking Prevention Project, University of Southern California

06/92-10/93 Sr. Research Associate, Women & HIV/AIDS Research Project, Charles R. Drew University of Medicine and Science

09/91-06/92 Graduate Research Assistant, Day One Community Partnership, University of Southern California

09/90-06/92 Program Manager, Tobacco Control Program, King-Drew Medical Center, Los Angeles, California

12/88-01/91 Staff Research Associate, California Heterosexual Partner' Study, University of California, San Francisco

10/88-11/89 Program Manager, People Who Care Youth Center AIDS Education Project, Los Angeles, California

02/88-11/88 Medical Assistant Instructor, Watterson Career College, Los Angeles, California

05/88-09-88 Peer Ethnographic Interviewer, California State University, Long Beach, AIDS Education and Prevention Project, Long Beach, California

08/87-08/88 Minority Aids Educator, Long Beach Health Department, Aids Education and Prevention Project, Long Beach, California

06/86-09/87 Research Assistant, Cancer Research Consortium, Charles R. Drew University of Medicine and Science, Los Angeles, California

10/84-11/85 Medical Consultant, W E. Thompson and Associates, Attorneys-at-Law, Washington, D.C.

HONORS AND MEMBERSHIPS:

Distinguished Young Women of America, 1987
Certificate of Appreciation, County of Los Angeles, Department of Health Services, Sexually Transmitted Disease Program, November 1989
Certificate of Appreciation, Los Angeles Southwest College Women's Center, October 1989
Certificate of Appreciation, County of Los Angeles, Department of Health Services, Sexually Transmitted Disease Program

SELECTED PUBLICATIONS:

1. Sussman, S., Parker, V., Crippens, D., Scholl, D., Elder P. "Empirical Development of Brief Smoking Prevention Videotapes Which Target African American Adolescents". International Journal of Additions 1995:30(9):1141-1164.
2. Rohrbach, L., Fishkin, S., Mansergh, G., Parker, V., Johnson, C.A. "A Survey of Substance Use and Related Issues in Pasadena and Altadena, California". Technical Report, August 1994.
3. Parker, V., Montgomery, S., Kipe, MD, O'Guynn, S. "Tracking Homeless/Runaway Youth", Technical Report, March 1995.
4. Parker, V., Sussman, S., Herring, D., Crippens, D., et al. "Qualitative Development of Smoking Prevention Programming for Minority Youth" (Under Review)
5. Parker V., Sussman, S., "Cigarette Smoking Among Family and Friends of Urban African American Youth" (Under Review)
6. Parker, V., Sussman, S., Herring, D., Crippens, D., et al. "The relations of Ethnic Identification With Smoking Among Ethnic Minority Youth" (Under Review)
7. Parker, V., Montgomery, S., Kipke, M., O'Guynn, S., "Longitudinal Follow-up of Urban Homeless/Runaway Youth: Methodology" (In Preparation)
8. Parker, V., Ashley, M., Montgomery, S., "Sexual and Condom Use Behaviors Among African American Adolescents Living In An Inner-City Public Housing Development" (In Preparation)
9. Parker, V., Rabinovitz, S., Kipke, M., "The Practice of Violence Among Urban Homeless/Runaway Youth" (In Preparation)

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
Linda Lue Pederson	Professor, Department of Epidemiology & Biostatistics

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Brown University	B.A.	1964	Psychology
University of Iowa	M.A.	1966	Child Behavior
University Western Ontario	Ph.D.	1980	Epidemiology & Biostatistics

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. DO NOT EXCEED TWO PAGES.

PROFESSIONAL EXPERIENCE:

1994-Present	Clinical Professor, Community Health & Preventive Medicine, Morehouse School of Medicine, Atlanta, GA
1994-1995	Professor, Epidemiology & Biostatistics, University of Western Ontario
1986-1991	Associate Director, Health Care Research Unit, University of Western Ontario
1984-1993	Associate Professor, Medicine, University of Western Ontario
1984-1994	Associate Professor, Epidemiology & Biostatistics, University of Western Ontario
1980-1984	Assistant Professor, Epidemiology & Biostatistics, University of Western Ontario
1980-1984	Assistant Professor, Medicine, University of Western Ontario
1979-1980	Research Associate, Medicine, Victoria Hospital/ University of Western Ontario
Winter 78	Teaching Assistant, Biostatistics II, Epidemiology & Preventive Medicine, University of Western Ontario
Fall 78	Teaching Assistant, Biostatistics I, Epidemiology & Preventive Medicine, University of Western Ontario
1973-1976	Research Assistant, Medicine, University of Western Ontario Programmer Coordinator, Smoking Withdrawal Program, Victoria Hospital Research Assistant, London Board of Education
1968-1975	Grader, Introductory Psychology Course, Psychology, Correspondence Division, University of Western Ontario
1968-1973	Consultant, Psychology, University of Western Ontario
1968-1973	Teaching Developmental Psychology, Extension & Summer School, University of Western Ontario
Oct. 1966-May 1967	Research Associate, Psychology, London Psychiatric Hospital
1964-1966	Research Assistant, Institute of Child Behavior & Development, University of Iowa
1963-1964	National Science Foundation Undergraduate Research Fellowship, Psychology, Brown University

HONORS AND MEMBERSHIPS:

Fellow, American College of Epidemiology, 1986

Member, Centre for Activity and Ageing, Lawson Research Institute of the St. Joseph's Health Centre and University of Western Ontario, 1993

Associate Member, Centre for Health Promotion, Banting Institute, University of Toronto, 1993-95

Steering Committee, "Working women's work-related health concerns survey", Industrial Disease Standards Panel, 1993
Board of Directors, Canadian Society for Epidemiology and Biostatistics, 1993
Reviewer, University of Toronto Press, 1992
Member, Advisory Board, Annals on Addiction; Journal published by the Publications Service of the University of Granada (Spain), 1992
Member, Editorial Board, Health Values, 1992
Advisory Board, Outcome Research for Independent Health Facilities, College of Physicians & Surgeons of Ontario, 1992
Advisory Board, Canadian Consensus on Physicians Intervention in Smoking Cessation, 1991
Member, Selection Committee for Chair, Department of Epidemiology & Biostatistics, University of Western Ontario, 1991
Member, Health Care Systems Review Committee, panel A., Ontario Ministry of Health, 1991-93
Coordinator, Department of Epidemiology & Biostatistics Seminar Services, 1990
Member-at-large, national Cancer Institute of Canada, 1990-98
Member, Ontario Health promotion Researchers and Practitioners Network Project Meeting, Ontario Prevention Clearinghouse Advisory Committee, June 4, 1990
Host, Ontario Health Promotion Researchers and Practitioners Workshop, Ontario prevention Clearinghouse, May 3, 1990
Member, Workshop on Health Promotion Research, Ontario Prevention Clearinghouse Advisory Committee, 1990
Member, Editorial Board, Women and health, 1989
Planning Committee, Adolescent Smoking Survey, Health and Welfare Canada, 1989-91

SELECTED PUBLICATIONS:

1. Ashley, M.J., Bull, S.B. and Pederson, L.L. Support among smokers and nonsmokers for restrictions on smoking. American Journal of Preventive Medicine, 1995 (in press).
2. Ostbye, T., Pomerleau, J., Speechley, M., Pederson, L.L. and Speechley, K. Correlates of body mass index in the 1990 Ontario Health Survey. Canadian Medical Association Journal, 1995, 152(11), 1811-1817.
3. Helmes, E., Hodsman, A., Lazowski, D., Bhardwaj, A., Crilly, R., Nichol, P., Drost, D., Vanderburgh, L. and Pederson, L. A questionnaire to evaluate disability in osteoporotic patients with vertebral compression fractures. Journal of Gerontology: Medical Sciences, 1995, 50A(2), M91-M98.
4. Bull, S.B., Pederson, L.L. and Ashley, M.J. Restrictions on smoking: Growth in population support between 1983 and 1991 in Ontario, Canada. Journal of Public Health Policy, 1994, 15(3), 310-328.
5. Bull, S.B., Pederson, L.L. and Ashley, M.J. Relationship of smoking status to changes in knowledge and attitudes concerning restrictions on smoking. Canadian Journal of Public Health, 1994, 85(2), 103-105.
6. Pederson, L.L., Bull, S.B., Ashley, M.J., Garcia, J.M. and Lefcoe, N.M. An evaluation of the work place smoking bylaw in the City of Toronto. American Journal of Public Health, 1993, 83(9), 1342-1345.
7. Turner, L.A., Pederson, L.L. and Ostbye, T. Health work force planning in the 90's, Part II: Enough in the right place at the right time? Healthcare Management Forum, 1993, 6(2), 23-30.
8. Turner, L., Ostbye, T. and Pederson, L.L. Work force planning in the 90's, Part I: Efficiency, economy and political will - the need for a new approach. Healthcare Management Forum, 1993, 6(1), 34-40.
9. Pederson, L.L., Bull, S.B., Ashley, M.J. and Kozma, D. Restrictions on smoking: Changes in knowledge, attitudes and predicted behavior in Metropolitan Toronto form 1983 to 1988. Canadian Journal of Public Health, 1992, 83(6), 408-412.
10. Pederson, L.L., Poulin, M., Lefcoe, N.M., Donald, A.W. and Hill, J.S. Does cigarette smoking affect the fitness of young adults?: Rationale and protocol for future research. The Journal of Sports Medicine and Physical Fitness, March 1992, 32(1), 96-105.

BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
SUSAN ROBINSON, MD, MPH	PHYSICIAN

EDUCATION (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Dillard University; New Orleans, LA	BS	1985	Chemistry
University of Pittsburgh; Pittsburgh, PA	M.D.	1990	Medicine
Loma Linda Uni. School of Public Health; Loma Linda CA	M.P.H	1993	Occupational/Epidemiology
Loma Linda University Medical Center; Loma Linda , CA	Residency	1993	Preventive Medicine
Drew University School of Medicine; Los Angeles, CA	Fellowship	1994	Cancer Prevention Research

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Key personnel include the principal investigator and any other individuals who participate in the scientific development or execution of the project. Key personnel typically will include all individuals with doctoral or other professional degrees but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the scientific development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. DO NOT EXCEED TWO PAGES.

PROFESSIONAL EXPERIENCE

1993-present Assistant Professor in Department of Internal Medicine at Charles R. Drew University

RESEARCH EXPERIENCE

1991-1993 Research Associate, "Bupropion as an Adjunct to Smoking Cessation" Principal Investigator, Lindy Ferry M.D., M.P.H., Loma Linda University Medical Center

1992-1994 Research Associate, "Dopamine Receptors in Nicotine Addiction", Principal Investigator, David Coming, M.D., City of Hope Medical Center

1995-1996 Co-Investigator, "Cancer Prevention and Control in Underserved Populations", Principal Investigator Mary Ashley RN, Drew University

1995-1997 Co-Investigator, "Cancer Fatigue and Quality of Life," Principal Investigator, Marcia Grant Ph.D., City of Hope Medical Center

1996-present Co-Principal Investigator, "Cancer Prevention and Control Manpower Development", Principal Investigator, Samuel Shacks, Ph.D., M.D., Drew University

1997-2000 Principal Investigator, "Using Breast Cancer Survivors to Increase Mammography Use", Department of Defense

PUBLICATIONS

Bradshaw S, Comings DE, and Ferry LH. "Dopamine Receptors in Nicotine Addiction". Journal of Addictive Diseases. 1993; 12 (4): 174.

Robinson S, Ashley M and Haynes A. "Attitudes Among African-Americans Regarding Prostate Cancer Screening Trails," JNMA. 1996;88(4):241-248.

Robinson S, Ashley M. and Haynes A. "Attitudes Regarding Participation in Prostate Cancer Clinical Trials Among African-Americans", J Comm Health. 1996; 21(2): 77-87.

Ashley M. ***Robinson*** S. and Haynes MA. "Determinants of Participation in Prevention Trials" Accepted with Revisions.

Bastani R, Yancey A, Maxwell A, and ***Robinson*** S. "Prostate Cancer Screening Behavior Among African Americans" Unpublished.

Wu L, Semenya K, Hardy R, Hargreaves M, ***Robinson*** S, Pederson L, and Sung J.,"Cancer Rate Differentials Between Blacks and Whites : A Ten Year Comparison" Submitted for publication.

Grant M, Anderson P, Ashley M, Padilla, ***Robinson S*** etc. "Fatigue and Quality of Life: A Multicultural Approach." Submitted for publication

PRESENTATIONS

1997	Advances in Smoking Cessation, Asian-American Medical Association in Los Angeles, CA
1997	Prostate Cancer Screening at American Association Cancer Research in San Diego on April 12-16, 1997
1997	"Prostate cancer" Grace United Methodist Church in Los Angeles
1996	"Recruitment strategies for African-Americans" Cancer Prevention and Control Research Workshop sponsored by The Jonsson Comprehensive Cancer Center at UCLA.
1995	"Reducing breast cancer mortality in women" Sixth annual Women's conference at Lynwood's City of Hall.
1994	"Prostate cancer in African-Americans" 22nd Annual Training Conference for The California Association of Black Correctional Workers

HONORS

1994	Young Investigator Award in Nicotine Addiction award by American Society of Addiction Medicine

SOCIETIES

1993-1995	Delegate, California Medical Association
1994-present	Board Member, Encore Plus Program
1994-present	Young Physician Section, California Academy of Preventive Medicine
1994-present	Program Coordinator, American College of Preventive Medicine
1996-present	Board Member, American Cancer Society-South Central Los Angeles Unit

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
Carolyn Rowley	Post-doctoral Fellow

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Loyola Marymount University, California	B.A.	1983	Psychology
Loyola Marymount University, California	M.A.	1988	Counseling Psychology
Southern Illinois University at Carbondale, Illinois	M.A.	1990	Clinical Psychology
Southern Illinois University at Carbondale, Illinois	Ph.D.	In Progress	Clinical Psychology

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. DO NOT EXCEED TWO PAGES.

PROFESSIONAL EXPERIENCE:

8/88 - 5/89	Teaching Assistant, Southern Illinois University at Carbondale: Carbondale, Illinois
6/89 - 5/90	Psychology Instructor, Southern Illinois University at Carbondale: Carbondale, Illinois
8/90 - 8/91	Undergraduate Psychology Advisor, Southern Illinois University at Carbondale: Carbondale, Illinois
9/91 - 5/92	Director of Psychology Undergraduate Studies/Psychology Instructor, Southern Illinois University at Carbondale: Carbondale, Illinois
9/92 - 5/93	Psychology Instructor, Southern Illinois University at Carbondale: Carbondale, Illinois
9/93 - 8/94	Pre-doctoral Internship, University of Louisville School of Medicine: Louisville, Kentucky
9/94 - 11/95	Associate Psychologist, Wayne and Associates: Louisville, Kentucky
1/96 - 5/97	Consulting Psychologist/Independent Contractor: Beverly Hills, California
6/97 - Present	Post-doctoral Research Fellow, Department of Research Training and the Drew component of the Drew-Meharry-Morehouse Consortium Cancer Center: Los Angeles, California

RESEARCH EXPERIENCE:

Sickle Cell Anemia
Infant Neurodevelopment and language acquisistion
Deviant sexual behavior and group therapy

HONORS:

Psi Chi Honor Society: Loyola Marymount University, Los Angeles, California (1983)
Roby Honoree for Academics: Southern Illinois University at Carbondale: Carbondale, Illinois (1992)

PAPER/POSTER PRESENTATIONS:

Rowley, C. (March, 1997). Sickle Cell Disease Research Foundation, Los Angeles, California "Emotional Stress/Coping Strategies for Parents"

Rowley, C. (July, 1996). Sickle Cell Disease Research Foundation, Los Angeles, California "Strategies for Coping with Emotional Stress and Sickle Cell Disease"

McIntyre, D.J., Mitchell, T.O., Landrum, R.E., & Rowley, C. (1993, February). Ready or not? Preservice microteaching for TAs. Video presented at Association of Teacher Educators 73rd Annual Meeting, Los Angeles, California

Rowley, C. (1991, April). Suicide ideation and depression in chronically ill children: A study of children and adolescents with sickle cell anemia. Poster presented at the Third Florida Conference on Child Health Psychology, Gainesville, Florida

Rowley, C., & Gilbert, B.O. (1991, May). Suicide ideation and depression in chronically ill children: A study of children and adolescents with sickle cell anemia. Paper pesented at the Midwest Psychological Association, Chicago, Illinois

PROFESSIONAL ORGANIZATIONS:

Student Member, American Association of Suicidology
Student Member, American Psychological Association
American Psychological Association of Graduate Students
Student Member, American Psychological Association, Section 1, Division 12
Student Member, Association of Black Psychologist
Psi Chi Honor Society
Sigma Xi, The Scientific Research Society
Society of Pediatric Psychology

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
>Mary Regina Saunders	

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	YEAR(s)	FIELD OF STUDY
Harvard University	Ed.M	1995	Risk & Prevention Program
University of California, Berkeley	A.B	1993	Medical Anthropology

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

Research Experiences

National Institute of Allergy and Infectious Diseases; Multicenter Study of the Pediatric AIDS Clinical Trials Group, Division of Aids, NIAID, and NIH: University of California, Los Angeles School of Medicine 1998-99. Department of Pediatric Infectious Diseases, Maternal and Child Immunology Clinic, Clinical AIDS research and Education: medical Chart Abstraction of HIV Infected Pregnant Women and their infants Receiving Care or Consultation at Study Sites.

Human Health and the Global Environment Research Training Program for Medical Students: Harvard School of Public Health, Harvard Medical School/Birmingham and Women's Hospital, Channing Laboratory 1997-98. Division of research and Epidemiology: biological markers of lead exposure and internal dose as predictors of disease among men, women, and children; genotyping assays to determine if certain genetic polymorphisms confer susceptibility to lead toxicity; epidemiological and bench research looking at lead and other meals as widespread pollutants playing major roles in the etiology of certain chronic diseases, diminished IQ, growth, and other undesirable outcomes; cancer immunology; and infectious disease investigation.

Medical research: University of California Los Angeles School of Medicine (1996) Departments of Biochemistry and Nutrition: Breast Cancer Risk and Body fat Distribution.

Honors

University of California Los Angeles School of Medicine/ Charles R. Drew University of Medicine and Science:

United American Healthcare Foundation Medical Scholarship, 1999-2000
National Health Service Corps Medical Fellowship, 1997, 1998-99, 1999-2000
National Medical Fellowship 1995-96, 1996-97
University of California Los Angeles graduate Student Association, Community Service Commissioner, 1997
Center for Disease Control, Epidemiology and Vaccine Preventable Diseases Division, Certificate of Merit, 1996

BIOGRAPHICAL SKETCH

Give the following information for the key personnel and consultants and collaborators. Begin with the principal investigator/program director. Photocopy this page for each person.

NAME	POSITION TITLE
Kofi . Alavi Semenya	ASSOCIATE DIRECTOR

EDUCATION *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
University of Ghana, Legon, Ghana	B.S.	1971	Math & Physics
University of Ghana, Legon, Ghana	M.S.	1974	Statistics & Demographics
University of North Carolina	Ph.D	1980	Biostatistics

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Key personnel include the principal investigator and any other individuals who participate in the scientific development or execution of the project. Key personnel typically will include all individuals with doctoral or other professional degrees, but in some projects will include individuals at the masters or baccalaureate level provided they contribute in a substantive way to the scientific development or execution of the project. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and representative earlier publications pertinent to this application. DO NOT EXCEED TWO PAGES.

EXPERIENCE

1980 -1982	Assistant Professor of Biostatistics, Meharry Medical College, School of Medicine
1982 - 1986	Consultant in Biostatistics and Part-time Faculty Member, Meharry Medical College, SOM
1982 - 1986	Assistant Professor of Statistics, Department of Physics, Mathematics and Computer Science, Tennessee State University, Nashville, TN
1987 - Present	Associate Professor of Biostatistictics, Cancer Control Research Unit and Department of Preventive and Community Dentistry, Meharry Medical College, Nashville, TN

HONORS AND MEMBERSHIPS

- Sigma X1 Scientific Society
- American Statistical Association
- Biometric Society
- Population Association of America

PUBLICATIONS

Koch, G.G., Grizzle, J.E., Semenya, K.A., and Sen, P.K. Statistical Methods for the Evaluation of Mastitis Treatment Data. Journal of Dairy Science. Vol. 61, No.6., 1987.

Semenya, K.A., Koch, G.G. Linear Models Analysis for Rank Functions of Ordinal Categorical Data. Proceedings of the Statistical Computing Section of the American Statistical Association. 1979.

Semenya, K.A., Koch, G.G. Compound Function and Linear Medal Methods for the Multivariate Analysis of Ordinal Categorical

Data. Institute of Statistics, Mimeo Series, No. 1323, UNC, Chapel Hill, NC., 1980.

Semenya, K.A., Koch, G.G. A Weighted Least Squares Strategy for Comparison of Populations Based on Grouped Survival Data. American Statistical Association - Proceedings of the Statistical Computing Section, 1981.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
Samuel J. Shacks, Ph.D., M.D.	Associate Profesoor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Arkansas State AM&N College, Pine Bluff, Ark.	B.S.	1960	Biology/Chemistry
University of California, Irvine, CA	Ph.D.	1972	Biology
University of California, Irvine, CA	M.D.	1977	Medicine
Harbor/UCLA Medical Center, Torrance, CA	Fellowship	1981-1983	Innunology/Allergy

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

Appointments/Positions:

1972-1973 Research Fellow, Medicine, Robert B. Brigham Hospital, Harvard Medical School, Boston, Massachusetts.

1973-1974 Research Fellow in Immunology, Department of Microbiology and Immunology, University of California, Los Angeles, School of Medicine.

1977-1980 Pediatrics Residency, Martin Luther King, Jr. General Hospital, Los Angeles, California.

1980-1992 Assistant Professor, Charles R. Drew University of Medicine and Science, Martin Luther King, Jr., General Hospital, Department of Pediatrics, Los Angeles, California.

1981-1983 MARC Faculty Fellowship in Pediatric Immunology, Division of Immunology and Allergy, Harbor-UCLA Medical Center, Torrance, California.

1991-Present Chief, Pediatric Immunology/Rheumatology, Department of Pediatrics, King/Drew Medical Center, Los Angeles, California.

1992-1995 Associate Professor I, Charles R. Drew University of Medicine and Science, Martin Luther King, Jr., General Hospital, Department of Pediatrics, Los Angeles, California.

1995-Present Associate Professor II, Charles R. Drew University of Medicine and Science, Martin Luther King, Jr., General Hospital, Department of Pediatrics, Los Angeles, California.

Experiences:

1983-1987 MARC Review Committee, NIH/NIGMS, Bethesda, Maryland.

1984-1997 Director, MARC Program, Charles R. Drew University of Medicine & Science, Los Angeles, California.

1984-Present Director, MBRS Program, Charles R. Drew University of Medicine & Science, Los Angeles, California

1986-1996 Comprehensive Sickle Cell Centers Parent Review Committee, NIH/NHLBI, Bethesda, Maryland.

1987-1992 Associate Dean for Research, Charles R. Drew University of Medicine and Science, Los Angeles, California.

1987-Present Association of Minority Health Professions Schools (AMHPS), Washington, D.C.

1987-1992 Liaison/Coordinator for AMHPS/NIH Initiatives, National Cancer Institute, National Institutes of Health, Bethesda, Maryland.

1987-Present Liaison Officer, Department of Defense, National Association for Equal Opportunity in Higher Education, Washington, D.C.

1989 Their Committee: State of the Nation's Health Research Facilities Infrastructure, National Academy of Science, Washington, D.C.

1990-1997 Consumer Representative, Immunology Devices Panel Food & Drug Administration, Rockville, MD.

1990-1991 Member, Sickle Cell Disease Task Force for the National Health, Lung, and Blood Institute (NHLBI) National Institutes of Health, Bethesda, Maryland.

1990-Present Member, Executive Board of Directors, National Cancer Control Research Network, Inc., National Cancer Institute, NIH, Bethesda, Maryland.

1990-1991 Partnership Member, NSF-Alliances for Minority Participation Program, California State University Dominguez Hills, Los Angeles, California (Planning Grant).

1990-1991 Member, Health Technology Study Section, Agency for Health Care Policy and Research/ DHHS/PHS, Rockville, Maryland.

Honors:

1989 Chair, Research Group, Association of Minority Health Professions Schools, Washington, D.C.

Publications:

1. Granger, G.A., Shacks, S.J., Williams, T.W. and Kolb, W.P.: Lymphocyte In Vitro Cytotoxicity; Specific Release of Lymphotoxin like Materials from Tuberlin Sensitive Lymphoid Cells. Nature 211:115-7, 1969.
2. Shacks, S.J. and Granger, G.A.: Studies on In Vitro Models of Cellular Immunity. J. Reticulonendoth. Soc. 10:28-49, 1971.
3. Shacks, S.J., Chiller, J. and Granger, G.A.: The In Vitro Role of Thymus Dependent Cells in DNA Synthesis and LT Secretion by PHA-Stimulated Mouse Lymphoid Cells. Transpl. Proceed 4:303-7, 1972.
4. Shacks, S.J., Chiller, J. and Granger, G.A.: Studies on In Vitro Models of Cellular Immunity: The Role of T and B Cells in the Secretion of Lymphotoxin. Cellular Immunol. 7:313-21, 1973.
5. Brosman, S., Hausman, M. and Shacks, S.J.: Studies on the Immune Status of Patients with Renal Adenocarcinoma. Jour. Urol. 114:373-80, 1975.
6. Brosman, S., Hausman, M. and Shacks, S.J.: Immunologic Alterations in Patients with Prostatic Carcinoma. Jour. Urol. 113:841-45, 1975.
7. Shacks, S.J. and Heiner, D.C.: Allergy to Breast Milk. Clinics in Immunol. and Allergy. 2(1):121, 1982.
8. Alfred, L.J., Ghoneum, M., Wojdani, A. and Shacks, S.J.: Alterations in NK Activity and T-Cell Subsets During the Development of Chemically Induced Tumors: Role of (BRMS). Immunobiol. 167, 1984.
9. Shacks, S.J., Heiner, D.C., Bahna, S.L. and Horwitz, C.A.: Increased Serum IgG4 Levels in Acute Epstein-Barr Viral Mononucleosis. Annals of Allergy, Vol. 54, Number 4, 1985.
10. Shacks, S.J. and Johnson, C.S.: Serum Concentration of Total IgG and IgG4 in Sickle Cell Anemia. American Society of Hematology Blood, 66, Suppl. 1,1986.
11. Shacks, S.J.: Reaching Hard-to-Reach Populations. 4th National Environmental Conference (pages 265-69), U.S. Dept. of Health and Human Services, PHS, San Antonio, Texas June20-23,1989.
12. Taylor, S.C. and Shacks, S.J.: Lymphokine and NK Cell Activity in Sickle Cell Disease: Pediatric Asthma Allergy and Immunology. Vol. 3 #4, 1989.
13. Taylor, S.C., Shacks, S.J., Villicana, S.M., Olivares, J. and Dinkins, A.: Interferon Production In Sickle Cell Disease: Lymphokine Research, Vol. 9, No. 3: 415-423, July 1990.
14. Taylor, S.C., Shacks, S.J., Villicana, S.M., Olivares, J. and Dinkins, A.: Lymphocyte Blastogenic Responses in Sickle Cell Disease: Immunological Investigations, Vol. 20, Iss. 5: 645-655, 1991.
15. Taylor, S.C., Shacks, S.J., Mitchell, R.A.: Mononuclear Cell Profiles in Sickle Cell Disease: Regional Meetings-American Federation for Clinical Research, Carmel, CA, February 8-11, 1995.
16. Taylor, S.C.,Shacks,S.J.,Mitchell,Ralph, and Banks, Aaron: Serum Interleukin-6 Levels in the Steady State of Sickle Cell Disease, Journal of Interferon and Cytokine Research, Vol. 15, Issue 12: 1061-1064, 1995.
17. Taylor,S.C.,Shacks,S.J.,Mitchell,R.A.: In Vitro Lymphocyte Blastogenic Responses and Cytokine Production in SC D Patients with Acute Pneumonia, Ped Infectious Disease Journ, Vol. 15, Issue 4:340-344, 1996.
18. Taylor, S.C., Shacks, S.J., Zengwei, Qu, and Wiley, Paul: Type 2 Cytosine Serum Levels in Healthy Sickle Cell Disease Patients, Journal of the National Medical Association, Vol.89, No.11, 1997
19. S.Taylor, S. Shacks, Z. Qu, and V. Colaco: In vitro suppression of the normal mitogenic T Lymphocyte response by steady state sickle cell disease sera, Immunological Investigations, 26(5-7), 561-568, 1997.

Principal Investigator/Program Director (Last, first, middle): Shacks, Samuel James

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
Beverly D. Taylor, MD	Associate Professor & Residency Director

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Fisk University, Nashville, TN	B.A.	1972	Biology
Meharry Medical College, Nashville, TN	M.D.	1976	Medicine
Meharry Medical College, Nashville, TN	Post Grad. Training	1976-80	Family Med. & Preventive Med.

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. DO NOT EXCEED TWO PAGES.

PROFESSIONAL EXPERIENCE:

1986	Associate Professor, Clinical Community Health/Preventive Medicine, Department of Community Health/Preventive Medicine, Morehouse School of Medicine, Atlanta, GA.
1986	Director, Public Health/Preventive Medicine Residency Program, Department of CH/PM, Morehouse School of Medicine, Atlanta, GA
1985	Director Undergraduate Medical Education, Family Medicine Clerkship, Department of CH/FP, Morehouse School of Medicine, Atlanta, GA.
1984-85	Assistant Professor, Department of CH/FP, Morehouse School of Medicine, Atlanta, GA
1983-84	Part-time association with Med First Centers, Atlanta, GA
1983-84	Part-time association with Med First Centers, Atlanta, GA
1981-82	Private Practice, Birmingham, Alabama
1981	Assistant Professor - Department of Family Medicine and Community Medicine, Meharry Medical College, Nashville, TN
1980	Instructor - Joint appointments in Department of Family Medicine and Community Medicine, Meharry Medical College and Tennessee Department of Public Health, Mid-Cumberland Region.
1979-80	Chief Resident, Family Medicine Residency Program, Meharry Medical College
1976-80	Resident-Family Medicine & Preventive Medicine Residency Program, George Hubbard Hospital, Nashville, TN
1972-74	Counselor/Teacher - Biology - Upward Bound Program, Fisk University, Nashville, TN

SELECTED PUBLICATIONS:

1. Taylor, BD, Glazner, HK; Young, "Primary prevention of Hypertension: New Directions for the Nation". Presented at the American Occupational Health Conference, April 25-30, 1993.
2. Sung, JFC; Taylor B, et al. Maternal Marital Status and Racial Differences in Infant Mortality: A Georgia population based study (Abstract accepted for Prevention '92. Baltimore, MD Poster Presentation).
3. Fain M, Taylor BD, Johnson JC, Williams MP, Moss SE, Cultural and Linguistic Diversity in African American Alzheimer's Patients. Presented at American Speech-Language Hearing Association Annual Meeting, Marriott Marquis Hotel, Atlanta, GA, November 23 1991

4. Taylor, BD, Improving Your Risks - A look at lifestyle interventions for the working woman. Presented at the Georgia Northwest Council of Girl Scouts. Unity Presbyterian Church, Decatur, GA, September 1991.
5. Blumenthal, DS and Taylor, BD. The Need for Black Specialists in Preventive Medicine. American Journal of Preventive Medicine, 1990; 6(6), 330-332.
6. Taylor, BD. "Utilization of Preventive Medicine Residents in the Teen Clinical Preventive Medicine Service at the Fulton County Health Department." Presented in the Maternal and Child Health/Teenage Pregnancy Section of the National AHEC Conference, Louisville, Kentucky, June 11-14, 1989.
7. Taylor B, Griffith P, Sung JFC and Densler M. "Characteristics of Alzheimer's Disease in Blacks". Presented to the Georgia Regional Conference on Aging. September 28, 1989.
8. Taylor B, Griffith P, Sung JFC, and Densler M. "Alzheimer's Disease Investigation at a Community Hospital", Atlanta, Georgia. Presented at Georgia Rural Health Conference. Helen, Georgia, 1988.
9. Blumenthal DS, and Taylor BD. "If I Ran the Zoo", an example of required ambulatory clerkships in the senior year. Presented at the Society of Teachers in Family Medicine, Spring Conference, April 1, 1985, Atlanta, Georgia.
10. Mims A, Sung JFC, Taylor BD, et al. The Effectiveness of personal Letters to improve the influenza Immunization Rate in Geriatric Patients.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME	POSITION TITLE
>Ling Y. Wu	>Assistant Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	YEAR(s)	FIELD OF STUDY
>East China Normal University, Shanghai, China	Pre-university program	1974-76	> Mathematics
Shanghai medical University, Shanghai, China	B.M., M.D.	1977-83	Medicine
University of California, Berkeley, CA	M.P.H	1991-92	Maternal and Child Health
John Hopkins University (JHU), Baltimore, MD	Ph.D.	1992-95	Reproductive Epidemiology

RESEARCH AND PROFESSIONAL EXPERIENCE: Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications. **DO NOT EXCEED TWO PAGES.**

10/1997 – Present	Assistant Professor	Internal Medicine, Meharry Medical College, Nashville, TN
8/1996 – Present	Epidemiologist & Research Fellow	Cancer Control Research Unit, Meharry Medical College, Nashville, TN
1992 – 1996	Research Assistant	JHU School of Hygiene and Public Health, Baltimore, MD
1995 Summer	Project Designer	Family Health International, Epidemiology Division, Triangle Park, NC
1992 Summer	Visiting Physician	Family Planning Clinic of Grady Hospital, Atlanta GA
1983-1991	Physician Director	Shanghai Public Health Center, Shanghai, China
1976-1978	Mathematics Teacher	Local High School

Peer-Reviewed Publications Pertinent to this Application

1. Wu, L. Y. Risk Factors of Breast Cancer among Shanghai Women. J. *Shanghai Medical University* 1:83.
2. Wu, L.Y. Semenya K, Hardy R., et at. Cancer Rate Differentials Between Blacks and Whites of Three Metropolitan Areas: A Ten-Year Comparison.

Relevant Research Projects During the Last 5 Years

1. Year 1997

Title: Recent Trends in Incidence of Breast Cancer among Blacks and White Women in Tennessee, 1989-1993. Funding Source: US Army Medical Research Acquisition Activity "Cancer Prevention and Control Research Manpower Development" funding new investigators and researchers in breast and cervical research. Role on project: Everything, from data collection to paper writing.

2. Year 1996

Title: Cancer rate Differentials Between Blacks and Whites of Three Metropolitan Areas: A ten Year comparison. Funding Source: As above Role on Project: As Above.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Photocopy this page or follow this format for each person.

NAME Kangmin Zhu

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Univ. of Washington, Seattle, WA	Ph.D.	1994	Epidemiology
Tongji Medical Univ., Wuhan, PRC	MPH	1985	Epidemiology
Tongji Medical Univ., Wuhan, PRC	M.D.	1982	Medicine

RESEARCH AND PROFESSIONAL EXPERIENCE: *Concluding with present position, list, in chronological order, previous employment, experience, and honors. Include present membership on any Federal Government public advisory committee. List, in chronological order, the titles, all authors, and complete references to all publications during the past three years and to representative earlier publications pertinent to this application. If the list of publications in the last three years exceeds two pages, select the most pertinent publications.* **DO NOT EXCEED TWO PAGES.**

Professional Experience

Associate professor, Department of Occupational and Preventive Medicine, School of Medicine, Meharry Medical College, Nashville, TN, 1998-present.

Assistant professor, Department of Family and Preventive Medicine, School of Medicine, Meharry Medical College, Nashville, TN, 1994-1998 and *Research fellow*, Drew-Meharry-Morehouse Consortium Cancer Center, 1994-1997.

Research Associate, Fred Hutchinson Cancer Research Center, and *Research Assistant*, Social Development Research Group, University of Washington, Seattle, WA, 1992-1994.

Research Assistant, Children's Hospital and Medical Center, Seattle, WA, 1990-1991.

Research Assistant, Department of Epidemiology, University of Washington, Seattle, WA, 1989-1990.

Lecturer, Department of Epidemiology, Tongji Medical University, Wuhan, PRC, 1987-1988.
Teaching Assistant, Department of Epidemiology, Tongji Medical University, Wuhan, PRC, 1985-1987.

Publications :

1. Zhu K. A discussion of logical methods in research on causality between smoking and lung cancer. Medicine and Philosophy 1986;7:10-2.
2. Zhu K, He S, Pan X, Zheng X, Gu Y. The relation of urinary cations to blood pressure in boys aged seven to eight years. Am J Epidemiol 1987;126:658-63.
3. Zhu K, He S, Pan X, Zheng X, Gu Y. The relationship between blood pressure and sodium, potassium, calcium and magnesium in the urine. Chinese J Epidemiol 1987;8:9-13.
4. Zhu K, He S. The estimation of population attributable risk fraction in case-control studies. Guowai Yixue 1987;4:198-204.
5. Zhu K, He S, Pan X. The logistic regression analysis of urinary cations in relation to blood

pressure in children. J Clin Cardiol 1987;3:223-5.
6. Zhu K, He S, Pan X, Zheng X, Gu Y, Zhang Y, Shi L, Huang R. A study of variables in relation to blood pressure among boys by factor analysis. Chinese J Prev Med 1988;3:169.
7. Zhu K, He S. The intrapopulation studies on the relationship between sodium and hypertension. Prog in Epidemiol 1988;5:295-307.
8. Zhu K, He S. The estimation of relative risk in case-control studies. Chinese Hlth Stat 1989;6:25-8.
9. Zhu K, Shi L, Huang M, Li G, Zhan Z. A study of the relationship between urinary cations and blood pressure among old people in Wuhan. Acta Tongji Univ 1989;3:207-8.
10. Zhu K, Psaty B. Sodium and blood pressure: the puzzling results of intrapopulation epidemiologic studies. Med Hypotheses 1992;38:120-4.
11. Gu Y, He S, Zhu K, Shi L, Yin Z, Wang Z, Xiong T. A study of risk factors for female breast cancer in small/middle-sized cities in Hubei. Chinese J Public Health 1992;11:340-2.
12. Zhu K. "Sick building syndrome": an inappropriate term. J Occup Med 1993;35:752.
13. Zhu K, Weiss NS, Schwartz SM, Daling JR. Assessing the relationship between marital status and cancer incidence: methodological considerations. Cancer Causes and Control 1994;5:83-7.
14. Gu Y, Shi L, Zhu K, Zhang H, An L, Zheng S, Yuan J, Yin Z. A genetic epidemiological study on female breast cancer. Chinese J Genetics 1994;2:62-4.
15. Zhu K. Classification and nomenclature of nonexperimental epidemiological design. J Epidemiol 1994;4:113-9.
16. Coonrod DV, Hickok DE, Zhu K, Easterling TR, Daling JR. Risk factors for preeclampsia in twin pregnancies: a population-based cohort study. Obstet Gynecol 1995;85:645-50.
17. Gu Y, He S, Shi L, Li G, Zhu K, Yin Z, Wang Z, Xiong T. Population attributable risk for breast cancer in urban residents in Hubei province. Chinese Public Health 1995;11:2-5-6.
18. Zhu K, Levine RS, Brann EA, Gnepp DR, Baum MK. A population-based case-control study of the relationship between cigarette smoking and nasopharyngeal cancer. Cancer Causes and Control 1995;6:507-12.
19. Gu Y, He S, Shi L, An L, Li G, Zhu K, Yin Z, Wang Z, Xiong T. An analysis of population attributable risk for breast cancer in urban and coal-mine areas. Chin J Epidemiol 1996;17:102-4.
20. Gu Y, Shi L, An L, Yuan J, Zhu K, Zhang H, Zheng S, Yin Z. Genetic factors and breast cancer. Chin J Med Genet 1996;13:184-5.
21. Zhu K, Stanford JL, Daling JR, McKnight B, Stergachis A, Brawer MK, Weiss NS. Vasectomy and prostate cancer: a case-control study in a health maintenance organization. Am J Epidemiol 1996;144:717-22.
22. Zhu K, Levine RS, Brann EA, Baum MK. The relationship of hepatitis history and pathological diagnosis of primary liver cancer. J Clin Epidemiol 1997;50:297-301.
23. Zhu K, Levine RS, Brann EA, Gnepp DR, Baum MK. Cigarette smoking and nasopharyngeal cancer: an analysis of the relationship according to age at starting smoking and age at diagnosis. J Epidemiol 1997;7:107-11.
24. Zhu K, Bernard LJ, Levine RS, Williams SM. Estrogen receptor status of breast cancer: a marker of different stages of tumor or different entities of the disease? Med Hypotheses 1997;49:69-75.

25. Kosterman R, Hawkins JD, Spoth R, Haggerty KP, Zhu K. Preparing for the Drug Free Years: Effects of a preventive parent-training intervention on observed family interactions. J Community Psychol, 1997;25:337-52.
26. Zhu K, Levine RS, Gu Y, Brann EA, Hall I, Caplan L, Baum MK. Non-Hodgkin's lymphoma and family history of malignant tumors in a case-control study. Cancer Causes and Control 1998;9:77-82.

Published Abstracts

1. Zhu K, Daling J, Mueller B, Sherman K. The association of HIV infection and lymphoma occurrence: an analysis using SEER data. Am J Epidemiol 1991;134:780.
2. Zhu K, Stanford JL, Daling JR, McKnight B, Stergachis A, Brawer MK, Weiss NS. Vasectomy and prostate cancer: a case-control study in a health maintenance organization. Am J Epidemiol 1994;139:S81.
3. Zhu K, Levine RS. Cigarette smoking and primary liver cancer: a population-based case-control study in the US. Am J Epidemiol 1995;141:S13.
4. Levine RS, Zhu K. A population-based case-control study of the relationship between cigarette smoking and nasopharyngeal cancer. Am J Epidemiol 1995;141:S61.
5. Zhu K, Levine RS, Brann EA, Gnepp DR, Baum MK. Cigarette smoking and nasopharyngeal cancer: an analysis of the relationship according to age at starting smoking and age at diagnosis. Proc Am Assoc Cancer Res 1996;37:256.
6. Zhu K, Levine RS, Brann EA, Baum MK. The relationship of hepatitis history and pathological diagnosis of primary liver cancer. In: The XIV International Scientific Meeting of the International Epidemiological Association. Global Health in a Changing Environment. Nagoya, Japan, 1996.
7. Zhu K, Levine RS, Gu Y, Brann EA, Hall I, Caplan L, Baum MK. Non-Hodgkin's lymphoma and family history of malignant tumors in a case-control study. Proc Am Assoc Cancer Res 1997;38:300.
8. Gu Y, Zhu K, Levine R, Brann E, Hall I, Caplan L, Baum M. Interactions between behaviors of HIV infection and smoking or hepatitis in the occurrence of non-Hodgkin's lymphoma. Proc Am Assoc Cancer Res 1997;38:298.
9. Levine R, Zhu K, Gu Y, Brann E, Hall I, Caplan L, Baum M. Non-Hodgkin's lymphoma and infectious mononucleosis: a case-control study. Proc Am Assoc Cancer Res 1997;38:299.
10. Zhu K, Levine RS, Gu Y, Brann EA, Caplan LS, Hall I, Ragsdale BD. A case-control analysis of risk factors for sarcoma in different sites. Proc Am Assoc Cancer Res 1998;39:101.
11. Zhu K, Levine RS, Brann EA, Gu Y, Caplan LS, Hall I, Baum MK. A study of risk factors for non-Hodgkin's lymphoma according to family history of hematolymphoproliferative malignancies. Am J Epidemiol 1998;11:S7.
12. Caplan LS, Hall I, Levine RS, Zhu K. Preventable risk factors for nasal cancer. Am J Epidemiol 1998;11:S74.

Appendix - B

Recent Trends in Breast Cancer Incidence

Among Black and White Women in Tennessee, 1989-1998

Ling Wu[1], MD, PhD, Margaret Hargreaves[2], PhD, Kofi Semenya[3], PhD

Abstract

Purpose: The purpose of this study is to examine and compare the recent trend in breast cancer incidence among white and black women in the state of Tennessee between 1989 and 1998.
Methods: Breast cancer incidence data were collected in Tennessee between 1989 and 1998. Breast cancer cases were reported from all Tennessee hospitals to the Tennessee Cancer Reporting System which is a program of the State Department of Health. Population data were also provided by the Office of Health Statistics of the State Department of Health. Breast cancer incidence rates were calculated by age and race (white and black) for each year from 1989 through 1998. These rates were also age-adjusted using the 1970 US population as the standard population. The percentage change in age-adjusted incidence rates were calculated. Cochran Weighted χ^2 tests were employed to examine the significance of the difference in age-adjusted incidence rates between white and black women. The Linear Regression model was used to assess linear trends of race-difference in age-adjusted incidence rates with year.
Results: From 1989 through 1998, breast cancer incidence rates of both white and black women increased, but the incidence rate of black women increased more rapidly than the rate of white women. During the 9-year period, by average, black women's age-adjusted incidence rate increased by 37.4% while white women's rose by only 20.1%. Because of the difference in change speed, black women's age-adjusted incidence rate was getting closer to white women's. Before 1992 (4 years), the average difference in age-adjusted rates was 10.3/100,000, but after 1992 (6 years), the average difference reduced to 3.8/100,000. In 1989 and 1990, the difference is statistically significant (χ^2= 6.25, p=0.01 and χ^2= 3.80, p=0.05, respectively), but in the next 8 years, from 1991 to 1998, the difference is statistically insignificant. A fitted Linear Regression model suggests that the difference in age-adjusted incidence rates between white and black women significantly decreased with year (F=10.0, p = 0.01).
Conclusions: In recent years in Tennessee, the age-adjusted breast cancer incidence of African-American women is approaching and becoming similar to the rate of white women. The reasons for this phenomenon are likely to be multifactorial, but the most important reason is increasing use of mammography.

1, 2, and 3: From Cancer Control Research Unit. Meharry Medical College.

1005 D.B.Todd Boulevard. Nashville Tennessee 37208

Breast cancer is the most common form of cancer among black and white women in the United States. According to a report from the Surveillance, Epidemiology, and End Results (SEER) program, the incidence of breast cancer has been rising for the past two decades [1]. During the same time period (1973-96) white women had a higher age-adjusted incidence rate of breast cancer mainly due to a significantly higher incidence rate among postmenopausal women aged 50 or older. This age-adjusted incidence has consistently been higher among white than among black women[1]. Between 1989 and 1996, however, the incidence of breast cancer slightly increased by 2.3% among white women, while it significantly rose by 12.2% among black women[1]. Due to the speed difference in incidence rising between white and black women, the gap of breast cancer incidence between white and black women has become smaller and smaller since 1989 [1] (Table 1). In 1989, the difference in age-adjusted rates between white and black women was 21.4/100,000, and in early 1990s, the difference reduced to 18-19/100,000, and in middle 1990s, the difference decreased to 12-13/100,000. More importantly, there is an association between the difference and year (Figure 1). A Linear Regression model ($Y = \beta_0 + \beta_1 X$, Y is the dependent variable of difference in age-adjusted rates between white and black women, and X is the independent variable of year) is fitted with the SEER data. The modeling procedure results in a statistically significant association ($F=10.2$, $p=0.02$). SEER data suggested that black women's age-adjusted breast cancer incidence rates have been getting closer to white women's rates since early 1990s.

The purpose of this study is to examine the recent trend in breast cancer incidence among white and black women in the state of Tennessee between 1989 and 1998, calculated from the

Tennessee State data set of the Cancer Reporting System.

Method

Breast cancer incidence data were collected in Tennessee between 1989 and 1998. Breast cancer cases were reported from all Tennessee hospitals to the Tennessee Cancer Reporting System which is a program of the State Department of Health. Population data were also provided by the Office of Health Statistics of the State Department of Health.

Breast cancer incidence rates were calculated by age and race (white and black) for each year from 1989 through 1998. These rates were also age-adjusted using the 1970 US population as the standard population. The percentage change in age-adjusted incidence rates were calculated. Cochran Weighted χ^2 tests were employed to examine the significance of the difference in age-adjusted incidence rates between white and black women. The Linear Regression model was used to assess linear trends of race-difference in age-adjusted incidence rates with year.

Results

Two important changes in breast cancer incidence from 1989 through 1998 were noted: (1) the incidence rates for both white and black women increased for the period; and (2) the incidence rate for black women increased more rapidly than the rate for white women, especially. Table 2 shows that during the 9 year period, by average, black women's age-adjusted incidence increased by 37.4% while white women's rose by only 20.1%. Because of the difference in change speed, black women's age-adjusted incidence rate was getting closer to white women's (Table 3). Before 1992 (4 years), the average difference in age-adjusted rates was 10.3/100,000, but after 1992 (6 years), the average difference reduced to 3.8/100,000 (Table 3). More importantly, in 1989 and 1990, the

difference is statistically significant (χ^2= 6.25, p=0.01 and χ^2= 3.80, p=0.05, respectively), but in the next 8 years, from 1991 to 1998, the difference is statistically insignificant. The χ^2 test results suggest that after 1991, black women's age-adjusted incidence rate has been similar to white women's (Table 3). The Linear Regression modeling results (Figure 2) suggest that the difference in age-adjusted incidence rates between white and black women significantly decreased with year (F=10.0, p = 0.01).

Discussion

From 1989, (there was no data before 1989 in TN State registry), black women had a more rapid increase in breast cancer incidence than white women and this gap in incidence change between white and black women occurred mainly after age 50. In 50+ age group, from 1989 to 1998, the average increase among black women was 37.3% while among white women was 17.0% (Table 3). In <50 age group, there was no significant difference in average change between white and black women. From 1989 to 1998, the average increase among black women (<50) was 37.4% and among white women (<50) was 31.2% (Table 3).

A number of factors might be responsible for these observed changing trend patterns, including increased mammographic screening and early detection, increased access to care, changing risk factor exposure of African-American women and statistical variability. Some studies have suggested that breast screening has played the most important role in recent increase in breast cancer incidence [2,3]. It was reported that there has been a substantial rise in breast screening since 1987, but being older, black or Hispanic, were still associated with less regular use of breast screening. [4,5,6]. In Tennessee, Studies of mammography rates [7] have suggested that breast screening has played an significant role in the recent increasing trends in breast cancer incidence in both black and white

women. The greatest increase has been noted among older women, concurrently and since the 1992 congressional mandate supportive screening mammography payment by Medicare for recipient women >65 years of age and older [7]. The significant rise in mammography among older women corresponded with the rapid increase of breast cancer increase since 1992 in Tennessee. Older women as well as minorities (African American and Hispanic) women are known to participate in screening mammography to a lesser extent than do younger white and more affluent women. Studies of mammography among Tennessee female Medicare recipients reported in 1995 indicate a substantial increase among both white and African American elderly women [7]. While the mammography rate for white women has exceeded that of African American women in the past, the rate of increasing mammography use since 1987 appear to have increased more in the African American women [7]. The excessive percentage in mammography use among African American women in late 1980s explained to some degree of the more rapid rise in their breast cancer incidence since 1989. Nevertheless, the rate of mammography use in African American women still lags behind that of white women of comparable age by more than 10 percent.

A growing body of literature suggests that socioeconomic status (SES) explains or is associated with health care access and preventive health participation of minority women, including African American women who are disproportionately represented among the poor. In some studies controlling for both race and SES, race was still associated with less screening after adjusting for SES[8].

Assuming that female breast cancer incidence in Tennessee keeps the same pattern as the recent trends, we can expect that the age-adjusted breast cancer incidence among black women will become similar to that among white women. Using the fitted linear regression equation in early part

of this paper, $\hat{y} = 2004 - x$ ($\hat{y}$ refers to the difference in breast cancer incidence rates between black and white women, and x refers to year), given $\hat{y}=0$ (no difference), the estimated year when the age-adjusted breast cancer incidence is equal between black women and white women in Tennessee is year 2004.

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Table 1 Difference in Age-Adjusted Breast Cancer Incidence Rates Between White and Black Women, SEER, 1989-1996 (1/100,000)*

Year	White Women (PC*)	Black Women (PC*)	Difference between White and Black Women
1989	110.8	89.4	21.4
1990	114.5 (3.3%)	96.5 (7.9%)	18.0
1991	116.3 (5.0%)	97.7 (9.3%)	18.6
1992	114.2 (3.1%)	102.2 (14.3%)	12
1993	112.0 (1.1%)	100.8 (12.8%)	11.2
1994	114.6 (3.4%)	102.1 (14.2%)	12.5
1995	115.3 (4.1%)	102.4 (14.5%)	12.9
1996	113.3 (2.3%)	100.3 (12.2%)	13

* Based on SEER Cancer Statistics Review 1973-1996. National Cancer Institute 1998 [1].
* PC: Percentage change compared with 1989.

Table 2 Percentage Change in Age-Adjusted Breast Cancer Incidence Rates, By Race, Tennessee, 1989-1998 (1/100,000)*

Year	White Women			Black Women		
	All Ages (PC*)	<50(PC*)	50+(PC*)	All Ages (PC*)	<50(PC*)	50+(PC*)
1989	82.1	25.6	256.1	67.7	25.9	196.7
1990	83.7(1.9)	27.0(5.5)	258.7(1.0)	73.0(7.8)	31.0(20.0)	202.5(2.9)
1991	86.0(4.8)	27.8(8.6)	265.3(3.6)	76.9(13.6)	30.7(18.5)	219.4(11.5)
1992	96.5(17.5)	32.3(26.2)	294.6(15.0)	89.5(32.2)	35.3(36.3)	256.9(30.6)
1993	102.6(25.0)	36.0(40.6)	309.9(21.0)	100.3(48.2)	37.5(44.8)	293.8(49.4)
1994	102.6(25.0)	36.0(40.6)	309.9(21.0)	100.3(48.2)	37.5(44.8)	293.8(49.4)
1995	111.9(36.3)	38.2(49.2)	339.2(32.4)	106.4(57.2)	40.9(57.9)	308.7(56.9)
1996	104.6 (27.4)	35.8 (39.8)	316.9(23.7)	101.2 (49.5)	38.3 (47.9)	295.2 (50.1)
1997	98.9(20.5)	34.6 (35.2)	297.3(16.1)	91.1(34.6)	32.8 (26.6)	270.9 (37.7)
1998	100.8 (22.8)	34.5 (34.8)	305.2(19.2)	98.2 (45.1)	36.1 (39.4)	289.8 (47.3)

* Based on data from the Division of Health Statistics of the State Department of Health, TN. Rates of 1993 and 1994 are the average rates of the two years.

* PC: Percentage change compared with 1989.

Table 3 Difference in Age-Adjusted Breast Cancer Incidence Rates Between White and Black Women, Tennessee, 1989-1998 (1/100,000)*

Year	White Women (PC*)	Black Women (PC*)	Difference between White and Black Women	weighted χ^2 and p value
1989	82.1	67.7	14.4	χ^2= 6.25, p=0.01**
1990	83.7	73.0	10.7	χ^2= 3.80, p=0.05**
1991	86.0	76.9	9.1	χ^2= 2.25, p=0.15
1992	96.5	89.5	7.0	χ^2= 1.21, p=0.25
1993	102.6	100.3	2.3	χ^2= 0.16, p=0.70
1994	102.6	100.3	2.3	χ^2= 0.16, p=0.70
1995	111.9	106.4	5.5	χ^2= 0.64, p=0.40
1996	104.6	101.2	3.4	χ^2= 0.25, p=0.60
1997	98.9	91.1	7.1	χ^2= 1.50, p=0.20
1998	100.8	98.2	2.5	χ^2= 0.16, p=0.70

* Based on data from the Division of Health Statistics of the State Department of Health, TN. Rates of 1993 and 1994 are the average rates of the two years.
** Statistically significant.

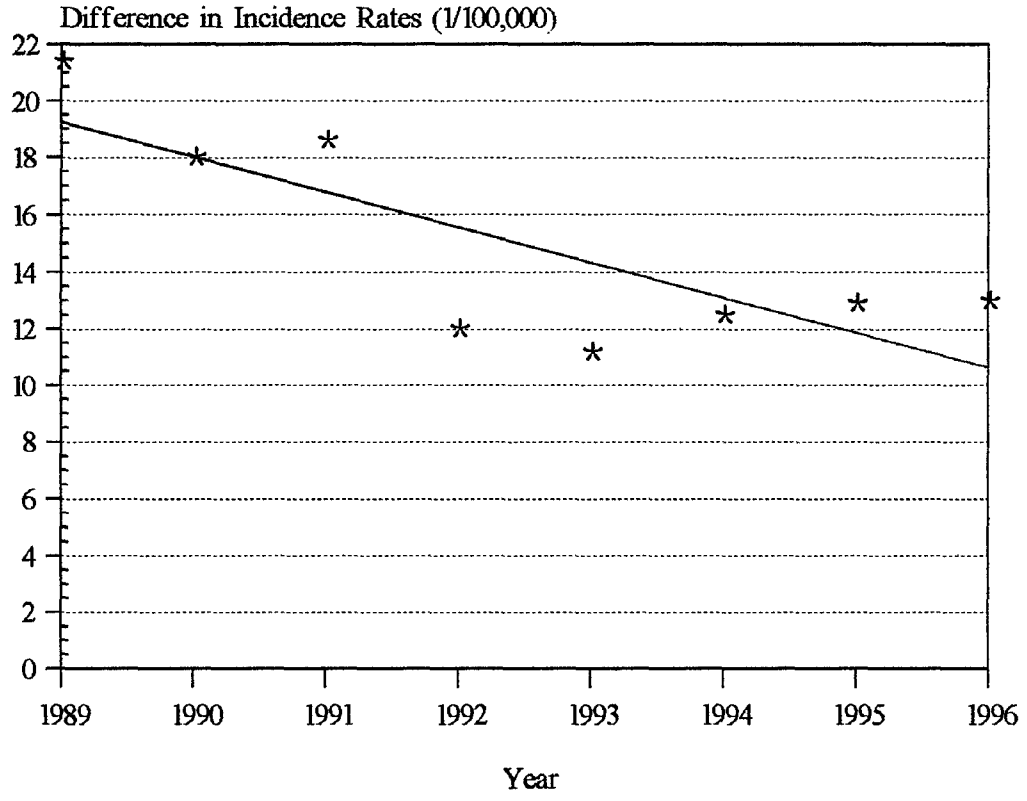

Figure 1 Difference In Age-Adjusted Breast Cancer Incidence Rates Between White And Black Women, SEER, 1989-1996 (1/100,000)

(Fitted Linear Regression Equation: $\hat{y} = 2468 - 1.2x$. Analysis of variance: F=10.2, p=0.02)

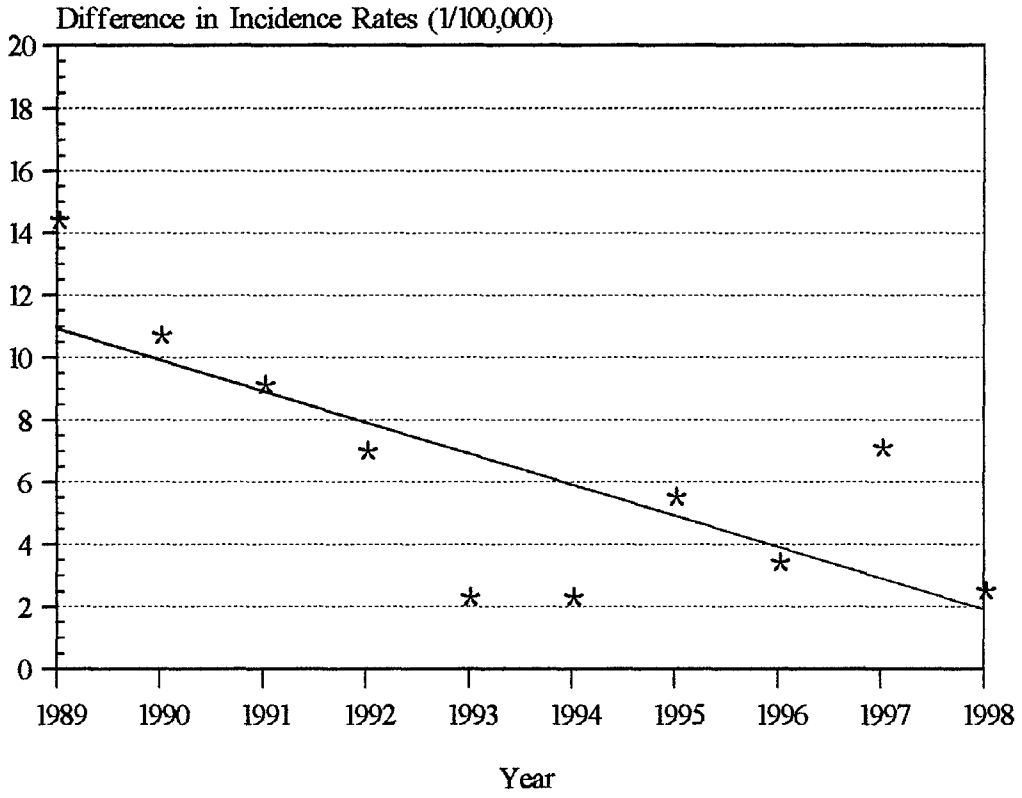

Figure 2 Difference In Age-Adjusted Breast Cancer Incidence Rates Between White And Black Women, Tennessee, 1989-1998 (1/100,000)

(Fitted Linear Regression Equation: $\hat{y} = 2004 - x$. Analysis of variance: F=10.0, p=0.01)

Breast Cancer Mortality among White and Black Women in Tennessee: A Fifteen Year Trends

Ling Y. Wu, M.D., Ph.D., Margaret Hargreaves, Ph.D.

The National Cancer Institute (NCI) announced recently that breast cancer mortality for White women in the United States has improved markedly in the 1990s compared with the 1980s, while for Black women, increases in mortality persist [1]. From 1980 to 1990, breast cancer age-adjusted mortality rate increased by 0.7/100000 among White women and increased by 5.2/100000 among Black women. From 1990 to 1995, breast cancer age-adjusted mortality rate decreased by 2.5/100000 among White women but still increased 0.3/100000 among Black women (Table 1).

Table 1 U.S. Female Breast Cancer Mortality, Age-adjusted, By Race (1/100,000)*

Year	White Women	Black Women
1980	26.6	26.4
1981	26.8	27.1
1982	26.9	28.2
1983	26.8	28.0
1984	27.3	30.0
1985	27.6	29.1
1986	27.4	29.6
1987	27.1	30.6
1988	27.4	31.4
1989	27.5	30.4
1990	27.3	31.6
1991	26.9	31.9
1992	26.0	31.0
1993	25.6	31.5
1994	25.2	31.3
1995	24.8	31.9

* data source: SEER Statistics Review 1973-1995.

In Tennessee, breast cancer mortality has the same trends as the whole nations. From 1980 to 1990, breast cancer age-adjusted mortality rate increased by 8.4/100000 among White women and increased by 4.7/100000 among Black women. From 1990 to 1995, breast cancer age-adjusted mortality rate stopped rising among White women but still increased 7.7/100000 among Black women (Table 2).

Table 2 Tennessee Female Breast Cancer Mortality, Age-adjusted, By Race (1/100,000)*

Year	White Women	Black Women
1980	23.1	31.8
1981	26.3	32.0
1982	26.2	34.2
1983	26.3	31.1
1984	28.0	35.7
1985	29.7	31.8
1986	28.6	36.6
1987	31.9	40.5
1988	30.9	38.7
1989	28.8	39.0
1990	31.5	36.5
1991	30.7	48.1
1992	30.7	40.7
1993	31.3	46.2
1994	31.5	44.2
1995	31.5	44.2

* data source: Health Department of State of Tennessee.

Discussion

Experts believe that the recent decline in breast cancer mortality is partly a result of mammography screening, which rapidly increased in the United States during the 1980s and resulted in a shift toward the detection of breast cancer at earlier, more curable stages. Experts also suggested that improved treatment, particularly the widespread adoption of tamoxifen therapy, is likely to have contributed

to the recent declines in breast cancer mortality [1].

Since tamoxifen therapy is widely used to treat breast cancer patients, the gap between breast cancer mortality of White women and Black women in the United States can be mostly attributed to the difference in mammography access between the two populations. The fundamental reason behind the differential mammography access, however, is believed to be socioeconomic status.
Poverty is known to be associated with premature mortality and decreased life expectancy. In general, populations in the least developed and most impoverished countries have lower life expectancies compared to developed countries [2]. Within the United States, minorities who are disproportionately represented within the lower socioeconomic stratum of the society have higher mortality rates for most of the major causes of death [3].

Breast cancer represents a high percentage of cancer deaths among women in this country. While the incidence or number of new cases per 100,000 population is higher among White women, Black women die at higher rates [4]. Yet, breast cancer deaths like those of cervical cancer, are among the most preventable, because they are amenable to early detection and treatment at a time when most curable. Screening mammography, the most effective method for early breast cancer detection is more underutilized by low income women, including Black women, who often present at more advanced stages of disease, and have higher breast cancer mortality than women with higher incomes [5-7]. The reason for this deficit in screening participation has been investigated by experts who have identified barriers to screening which are unique or disproportionately associated with poor women [8-11], but further studies are needed to determine whether the gaps between White and Black women would disappear should barriers to screening be overcome.

It was reported that there has been a substantial rise in breast screening since 1987, but being older, black or Hispanic, were still associated with less regular use of breast screening. [12-14]. In Tennessee, Studies of mammography rates [15] have suggested that breast screening has played an significant role in the recent increasing trends in breast cancer incidence in both black and white women. The greatest increase has been noted among older women, concurrently and since the 1992 congressional mandate supportive screening mammography payment by Medicare for recipient women >65 years of age and older [15]. Older women as well as minorities (African American and Hispanic) women are known to participate in screening mammography to a lesser extent than do younger white and more affluent women. Studies of mammography among Tennessee female Medicare recipients reported in 1995 indicate a substantial increase among both white and African American elderly women [15]. While the mammography rate for white women has exceeded that of African American women in the past, the rate of increasing mammography use since 1987 appear to have increased more in the African American women [15]. Nevertheless, the rate of mammography use in African American women still lags behind that of white women of comparable age by more than 10 percent. Thus, while increased screening, early detection and diagnosis in recent years have contributed to an increase in breast cancer incidence in both black and white women in Tennessee, they do not totally explain the accelerated incidence of breast cancer in these women [15].

A growing body of literature suggests that socioeconomic status (SES) explains or is associated with health care access and preventive health participation of minority women, including African American women who are disproportionately represented among the poor. In some studies controlling for both race and SES, race was still associated with less screening after adjusting for SES[16]. In a large Health Maintenance Organization (HMO) investigation, more White than Black women reported use of mammography, despite similar incomes and the availability of free

mammography [17]. Deborah et al. indicated that two explanations may account for this discrepancy: (1) providers' attitudes and values and (2) black women's health beliefs [18]. Their logistic regression model showed that the adjusted (for age, SES etc.) probability for not being screened routinely among Black women was 30% higher than White women and it is statistically significant. In addition, among African-American women and white women, the increasing use of mammography was associated with localized disease when diagnosed, whereas, those women not screened are diagnosed with more advanced stage [19].

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Appendix - C

Developing a Team for Multicultural, Multi-Institutional Research on Fatigue and Quality of Life

by Marcia Grant, Paula Anderson, Mary Ashley, Grace Dean, Betty Ferrell, Marjorie Kagawa-Singer, Geraldine Padilla, Susan Bradshaw Robinson, and Linda Sarna

Purpose/Objectives: To describe the process of establishing a multisite team to conduct research with a multicultural focus on fatigue.

Data Sources: Articles, book chapters, personal experience.

Data Synthesis: Teamwork facilitated development of a productive professional working group, sharing of resources, and data collection culminating in a research proposal for studying cancer-related fatigue in a multicultural population.

Conclusions: Establishing a common goal by investing time, committing to the process, and establishing trust was the secret to effective team functioning.

Implications for Nursing Practice: The prospect of multi-institutional collaboration has implications for oncology nurses in the areas of research and practice. Goals that could not be achieved easily in the setting of a single institution are reached more easily with multisite collaboration and teamwork.

The concept of cancer fatigue provides a rich area for oncology nursing research. One strategy that is useful in conducting this research is combining resources across diverse institutions and among researchers and clinicians with varied expertise. An initial step usually needed in implementing this strategy is the development of a multi-institutional research team of investigators with different clinical experiences, research backgrounds, and institutional support. Collaboration within this team requires commitment to the group and its work and the priority of research. This article focuses on the development of one multidisciplinary, multicultural team of researchers from cancer institutions in the greater Los Angeles area—the FIRE® I: LA Team. The multicultural population in this area presented opportunities and challenges in conducting cancer research. This article presents two aspects of the team's work: (a) the one-year process used to create a multisite research team whose purpose was to develop a proposal to study fatigue and quality of life within a multisite, multicultural framework; and (b) the approaches the team used to meet the challenges of multicultural research. Successes and obstacles are discussed.

Background

Multisite Team Research

The growth of oncology nursing research over the last 25 years has provided a beginning scientific basis for clinical nursing practice. Individual investigators have moved from single study approaches to the development of research programs that focus on broad problem areas such as self-care (Dodd & Dibble, 1993), communication (Northouse & Wortman, 1990), and pain management (Ferrell, 1995). The Oncology Nursing Society is promoting multi-institutional studies as the next step to expanding this scientific foundation (Mooney & Haberman, 1996). Multi-institutional team research can be used to promote collaboration and sharing of nursing research resources across institutions, improve research designs for greater generalizability of findings, and increase the pool of experienced nursing researchers. This approach has advantages and disadvantages (Stone, 1991). The advantages of multi-institutional team research include results related to the research design, the research work itself, and the team members. Participation by many institutions can enhance the research design by providing access to an increased number of potential subjects (Anderson, 1990). This is an important issue for nursing research because many studies suffer from small sample sizes. Multi-institutional participation also provides potential access to diverse cultures and varied socioeconomic status among research subjects. Thus, the research design can provide for comparisons among these groups, which increases the generalizability of the research findings as well as decreases the number of replications needed to confirm the findings.

Advantages to carrying out the actual research result from the availability of different resources among the participating institutions. One institution may provide

Marcia Grant, RN, DNSc, FAAN, is director and a research scientist, and Paula Anderson, RN, MN, is a research specialist, both in the Department of Nursing Research and Education at City of Hope National Medical Center in Duarte, CA. Mary Ashley, RN, PHN, MPH, is director of Cancer Prevention and Control in Underserved Populations at Drew University Cancer Center/Martin Luther King Hospital in Los Angeles, CA. Grace Dean, RN, MSN, is a research specialist, and Betty Ferrell, RN, PhD, FAAN, is a research scientist, both at City of Hope National Medical Center. Marjorie Kagawa-Singer, RN, PhD, is an assistant professor in the School of Public Health at the University of California, Los Angeles (UCLA). Geraldine Padilla, RN, is an associate dean and a professor in the School of Nursing at UCLA. Susan Bradshaw Robinson, MD, MPH, is an assistant professor in Family Medicine and Internal Medicine at Drew University Cancer Center/Martin Luther King Hospital. Linda Sarna, RN, DNSc, FAAN, is an associate professor in the School of Nursing at UCLA. *This work was funded by a Fatigue Initiative Through Research and Education (FIRE®) Developmental (Phase I) grant awarded by the Oncology Nursing Foundation and supported by Ortho Biotech Inc. (Received June 1997. Accepted for publication March 15, 1998.)*

, secretarial support, another may have biostatistical resources, while still another may have access to conference space needed for meetings. With multiple investigators available to carry out the work of the study, fluctuations in team members' nonresearch responsibilities can be accommodated by having other team members pick up research tasks as necessary. For example, a heavy teaching load one semester may limit a team member's participation; whereas having a sabbatical may release another team member from usual job responsibilities and give him or her time to participate more fully in the implementation of a study. The work of publishing can be increased by dividing the responsibilities for writing up study findings. This can result in an increased number of manuscripts and wider distribution of results.

One advantages to team members is an increased research interest as a result of the motivation and enthusiasm of other members. Differences in research experience among team members provide an opportunity for less-experienced members to learn from seasoned researchers. Also, including other healthcare disciplines on the team enriches the expertise available to develop, implement, and interpret research.

Disadvantages of multi-institutional team research occur as well and can be divided into those that relate to the research design and implementation and those that relate to individual members. Characteristics of individual institutions can limit the ability to implement a research design evenly across institutions (Koehler, Miller, Vojir, Hester, & Foster, 1997). Settings, for example, may differ in average length of stay for the needed population, availability of support staff to deal with psychosocial problems of patients, and staff involved in discharge planning and patient teaching. Staff mix may vary across institutions with some hospitals having all RN staff and others having a mix of RNs, licensed vocational nurses, and nurse's aides. These institutional differences may influence the outcome of the study if, for example, an intervention is implemented that can be biased by having more staff available to meet patients' psychosocial needs. Disadvantages to individual team members include the potential for conflicts about access to the data and authorship on manuscripts and abstracts (Thiele, 1989). Also, members may lose valuable time from usual job responsibilities because of the research work. An additional disadvantage may be the geographic distance that separates members. Distance can present barriers to attending group meetings and add to the cost of research through the need for mileage reimbursement and travel time for planning meetings, study implementation, and analysis. The process used to implement multi-institutional team research has the potential for capitalizing on the advantages of this approach. However, a careful plan for fostering positive team development and support is needed to overcome the disadvantages.

Fatigue and Multicultural Populations

Fatigue is a common and disturbing symptom for patients with cancer (Winningham et al., 1994). Research to date includes descriptive approaches, testing of fatigue instruments, and some initial interventions. The majority of this research was conducted on Caucasian populations, generally in a single institution. Research on fatigue in ethnic minorities is rare. However, differences in related research among ethnic groups provide evidence of the need to examine ethnic differences in the experience of fatigue and its effect on quality of life. One recent study identified relationships among fatigue, culture, and physical strength (Satariono, Ragland, & DeLorenze, 1996). This study focused on upper body strength in African American and Caucasian patients with breast cancer following treatment. Comparisons included African American and Caucasian women of the same age without disease (controls). No difference in upper body strength was found between the two control groups. At three months, both patient groups reported more limitation in upper body strength than controls; however, limitations were greater in African American patients than in Caucasian patients. At 12 months, Caucasian patients returned to the same level as Caucasian controls, while African American patients did not. The difference was described by African American women as a lack of physical strength and a limitation in physical functioning. Differences were not related to stage of disease, treatment, age, or physical demands of usual daily activities. The investigators concluded that either African American women had differences in physical strength or that their lives were more physically demanding than their Caucasian counterparts, but that further studies were needed.

Additional evidence for differences among ethnic groups relates to perceptions of psychological well-being that transcend cultural boundaries. These differences may include mental/psychological health and a global perception of satisfactory function and well-being (Berzon, Hays, & Shumaker, 1993). Cross-cultural differences were corroborated by eight Hispanic women with rheumatoid arthritis who participated in focus groups as part of an ongoing project by one of the investigators (Padilla, Johnson, et al., 1992). Diverse racial/ethnic group profiles of determinants and dimensions of psychological well-being were described in these focus groups. In addition, some factors may be more important than others across cultural groups. For example, socioeconomic factors related to psychological and physical well-being may be less important to patients who are affluent, have good insurance coverage, and can afford supportive resources as compared to those who are poor, have no insurance, and have limited resources. Furthermore, the meaning of well-being is likely to differ across cultural groups. For example, comfort is a complex phenomenon in the Latino culture that includes the sense of integration, functioning, normalcy, care and nurturing and of feeling secure, safe, and in control. Feeling integrated carries with it the sense of inner peace with oneself that goes beyond physical comfort (Neves, Larson, & Meleis, 1992). This concept of comfort is different in other cultures. Cultural differences on impact of breast cancer were identified in a study of 45 Asian- and Anglo-American women (14 Japanese-American, 18

Chinese-American, and 13 Anglo-American women (Kagawa- Singer, 1996b) with breast cancer, ages 35–72, who were one to three years post-treatment. No significant difference appeared across groups by age or ethnicity for overall experience of decreased energy or tiredness after chemotherapy or radiation therapy. Significant differences did appear in reports of fatigue by age and ethnicity in the following areas: decreased interest in recreation, decreased recreational activity, increased depression, difficulty sleeping, difficulty concentrating, and difficulty remembering. Requests for assistance with fatigue-related side effects were almost nonexistent for all groups by age and ethnicity. In summary, few studies on fatigue have addressed multicultural issues. However, ethnic differences among responses of patients with cancer to disease and treatment point to the need for such studies. The challenges associated with multicultural studies include access to sufficient numbers of subjects from diverse populations, a scarcity of qualified researchers, the burden of questionnaire translation, and the challenges of interpreting findings (Koehler et al., 1997; Lancaster, 1985; Thiele, 1989; Varricchio, 1997). The investigators of the FIRE® I: LA Team had the potential for meeting these challenges. The research team represented diverse populations and could provide valuable resources for accessing, implementing, and interpreting multicultural studies of fatigue.

Team Development Process

Membership

The FIRE® I: LA Team was formed in response to a call by the Oncology Nursing Foundation for proposals on the development of multisite research for cancer-related fatigue. In creating a workable approach to multisite research in the greater Los Angeles area, a multicultural approach was possible and could provide needed research results. Members of the team provided complimentary areas of expertise for this area of research. At City of Hope National Medical Center, the principal investigator had begun to examine fatigue as it related to quality of life in long-term survivors of bone marrow transplant (Grant et al., 1992). Ferrell had begun to describe fatigue as a component of quality of life in cancer survivors (Ferrell, Grant, Dean, Funk & Ly, 1996). Anderson and Dean had begun to explore physiologic markers for fatigue (Anderson, Dean, Grant, & Kelley, 1996). Expertise in the African American culture was provided when Ashley and Bradshaw from the Drew University Consortium Cancer Center agreed to join the group (Robinson, Ashley, & Haynes, 1996). Padilla, from University of California, Los Angeles (UCLA), brought a wealth of experience in quality-of-life research (Padilla, Grant, & Ferrell, 1992; Padilla, Grant, Ferrell, & Presant, 1996; Padilla, Johnson, et al., 1992) as well as work with minority arthritic patients, which provided a valuable background in fatigue (Padilla & Perez, 1995). Sarna, also from UCLA, provided expertise in the scientific background of fatigue with her research in nutrition and functional status in patients with cancer (Sarna, Lindsey, Dean, Brechts, & McCorkle, 1994). Kagawa-Singer, a nurse anthropologist from the School of Public Health at UCLA, rounded out the team with her expertise in multicultural research in patients with cancer (Kagawa-Singer, 1996b; Kagawa-Singer & Chung, 1994) that included those of Asian descent (Kagawa-Singer, 1996a). Team expertise was enhanced by selection of consultants in fatigue research (Barbara Piper, DNSc, RN), multi-institutional research (Barbara Given, PhD, RN, FAAN), and ethnic issues (Margaret Barton-Burke, MSN, RN). Thus, the FIRE® I: LA Team consisted of researchers and consultants who could provide current research experience in cancer-related fatigue, long-standing expertise in quality-of-life research, and expertise in multicultural research related to four cultural groups: African American, Asian, Latino, and Caucasian. Team members knew each other professionally, but they had not collaborated on a research project together. Each could contribute expertise in one or more aspects of cancer-related fatigue in multicultural groups. A proposal was submitted to the Oncology Nursing Foundation for a one-year development grant. Figure 1 presents the overall objectives of this grant.

We received funding for the proposal, and a one-year development grant was implemented. This first year's work of the FIRE® I: LA Team was aimed at developing the team into a cohesive group and creating a viable research proposal to submit for funding.

I. Develop the research team.
   - A. Acquire knowledge about each investigator and participating institution to facilitate multi-institutional research.
   - B. Cultivate a multidisciplinary team approach through group work on data analysis, interpretation, and synthesis of investigators' current data-based projects related to fatigue.
   - C. Explore the multicultural perspective of fatigue via multicultural team work and multicultural studies.

II. Develop the mechanisms for a multi-institutional research project on cancer-related fatigue.
   - A. Report primary analysis of investigators' current studies.
   - B. Conduct secondary analysis of investigators' completed projects related to fatigue and ethnic studies.
   - C. Interpret and synthesize study findings through monthly research team meetings.
   - D. Identify evolving research questions that focus on nursing interventions for cancer-related fatigue.
   - E. Integrate a multicultural approach into evolving research questions.

III. Prepare a grant proposal for an intervention study for cancer-related fatigue within a multicultural population of patients with cancer.
   - A. Develop an intervention for cancer-related fatigue for further evaluation.
   - B. Develop procedures for multi-institutional approval and implementation of the proposed phase II study.
   - C. Submit the phase II study for competitive review and funding.

Figure 1. Grant Objectives and Strategies

Team Development and Accomplishments

Good communication is essential to the development of a collaborative team (Coeling & Wilcox, 1994). Three elements of communication are important: content, relationships, and time. Content builds individual credibility, relationships are needed to build trust, and adequate time is needed for the process of communication to develop. A proposed time frame, strategies, and activities were developed and carried out in an effort to foster good communication among team members and implement the process of research proposal development.

Four phases were used to develop a cohesive team and create a research proposal: initiation, analysis, synthesis, and outcome (see Table 1). The group held a one-day meeting each month for one year. The principle investigator and team members at City of Hope were responsible for correspondence, meeting arrangements, agendas, minutes, and literature reviews.

During the three-month Initiation Phase, monthly meetings rotated among sites and enabled members of the research team to become familiar with each institution. During this phase, we reviewed the one-year development grant objectives, discussed confidentiality issues, and began plans for publication. We explored information on the research process used at each institution, which provided a basis for knowing when materials had to be submitted to each institution for scientific review. Tours of the facilities and introduction of key personnel provided a working familiarity with the various sites. Team members identified and solved transportation and parking problems for visitors to each institution. During the Analysis Phase, each investigator identified his or her completed and concurrent studies, and from that we developed a five-month schedule of presentations of relevant studies. Studies were selected for their ability to reveal information related to the group's multi-institutional and multicultural focus. A specific set of questions was designed for team members to use during these research presentations (see Figure 2). The questions were formulated to provide a stimulus for identifying theoretical and methodologic issues important in designing a fatigue proposal. This approach focused the discussion following each presentation. Implications for the research proposal to be developed by the FIRE® I: LA team were identified during the discussion. Presentations included quantitative and qualitative data and provided descriptive information on cancer-related fatigue. For each presentation, the format included presentation of specific content, critique/analysis and synthesis of the content, identification of cultural implications, identification of implications for future studies, and development of research questions for further study. Team members' summaries of each presentation were recorded on the questions/comments forms, compiled, and discussed again at the next team meeting. The summaries were used to develop a definition of fatigue, identify instruments used in measuring fatigue, and explore theoretical and measurement issues. Questions for consultants to the research team also were identified. During this phase, several investigators met with the consultants at an oncology conference. One consultant, Piper, provided expertise on instrumentation and fatigue definition. Given provided expertise on methodologic issues and answered questions on the advantages and disadvantages of proposed designs, and Barton-Burke provided expertise in multicultural issues and clinical relevance. Questions resulting from the analysis phase presentations were presented to the consultants, and their comments were used in the next steps of the team process.

Table 1. Process of Team Development

Phase	Length of Time	Purpose
Initiation	Three months	Build individual team member credibility.
Analysis	Five months	Analyze unpublished data from investigators' studies relevant to projected study on fatigue, multisite research, and multicultural research.
Synthesis	Two months	Design study using literature review and data from analysis phase.
Outcome	Two months	Prepare proposal and plan publication.

What conceptual issues were presented?
- Definition of fatigue
- Correlates of fatigue
- Conceptual/theoretical framework used

What methodologic issues were presented?
- What advantages and disadvantages were evident in the design of the study?
- What population was involved (age, diagnosis, ethnic status, socioeconomic status, etc.)?
- What were the major variable studies?
- What instruments were used? Did they work?
- What interventions were tested?
- What analytical approaches were used?

Did findings point to research questions remaining? What were these questions?

Figure 2. Questions/Comments for Presentation/ Discussion. Focus: Fatigue, Multiculturalism

During the Synthesis Phase, decisions were made on theoretical and design issues to be addressed in the developing proposal. By this point, the team had solidified. All members were contributing actively, and intense discussions about theoretical and methodologic decisions occurred. Critiques from the consultants helped the group reach consensus about the selection of a research design for the proposal. During this phase, descriptive statistics about the cancer population were gathered from each of the investigators' institutions and additional institutions where access was possible. The data needed to include the annual number of new patients with cancer treated at each institution according to type of cancer, stage of disease, medi-

cal treatment received, age distribution, ethnic status, and socioeconomic status. The availability of these data was problematic at most institutions. Stage of disease and medical treatment frequently were not divided by disease site, which made it difficult to identify target populations by cancer diagnosis. Ethnic status was incomplete at all the institutions and, when available, used different ethnic groupings, described only the cancer population in general, and was not available for specific diagnosis or treatment groups. Because categories of ethnic status differed across institutions, combining data across institutions was difficult. For example, the Asian population was treated as one group at some institutions and subdivided (e.g., Chinese, Cambodian, Korean) at other institutions. Socioeconomic status was not available at most of the institutions. During the Synthesis Phase, the aims and research methods for the evolving proposal were agreed upon after much discussion and debate. The biggest challenge identified was accruing a sufficient number of research subjects from specific ethnic groups within specific cancer diagnoses. Because of a lack of previous research identifying the value of a specific fatigue intervention, the creation of a proposal using an experimental or quasi-experimental design was rejected. In addition, no one in the group had strong feelings on selection of a specific intervention (e.g., nutrition, exercise). Research team members agreed that testing an unproven fatigue intervention among ethnic or cultural groups without knowing differences in fatigue among these groups was premature. They also agreed that descriptive, prospective data on fatigue among different cultural groups was an essential next approach. Thus, a large prospective correlational study design was selected. This allowed for comparisons of cancer-related fatigue across cultures. Because of the larger number of subjects needed for correlational designs, four groups were identified: English-speaking, Spanish-speaking Latino; English-speaking Asian; and Caucasians of northern European descent. Only one non-English-speaking group was included because of the complexity and expense of translating instruments (Varricchio, 1997) and insufficient numbers of potential subjects for each of the Asian subgroups.

During the Synthesis Phase, the research team also finalized the definition of fatigue to be used in the proposal.

> Cancer-related fatigue is defined as a subjective perception or experience related to disease or treatment. This sensation is multidimensional, is not easily relieved by rest, and has a profound impact on the dimensions of quality of life, including physical, psychological, social, and spiritual well-being. This fatigue is influenced by the cultural context of the individual and is associated with a reduced capacity to carry out expected or required daily activities.

During the Outcome Phase, the work of proposal writing occurred. Each member was responsible for developing specific sections of the proposal (see Table 2). The principal investigator was responsible for combining all sections of the proposal from each member, developing the budget, and revising the document into a useful, coherent proposal. A proposal was prepared and completed as planned.

Summary of the Success and Obstacles of the Team Development Aspect

The activities carried out during the four phases allowed the FIRE® I: LA Team to develop into a cohesive, collaborative working group whose success was measured partly in the creation of a research proposal for studying cancer-related fatigue in a multicultural population drawn from various institutions in the Los Angeles area. During the team development process, various successes and obstacles occurred. Successes included formation of a productive, professional working relationship among the team members, participation by each member in the presentation of completed and ongoing research related to fatigue, and group consensus on the definition of fatigue and on the conceptual and methodologic approach to be used in the proposal submitted for further funding. Sharing of resources across institutions occurred, but it was confined to providing space and support for monthly meetings. The biggest obstacle that occurred was obtaining sufficient new patient information from each participating institution to make a valid decision about the availability of the targeted population. Another obstacle was that the limited number of meetings (12 over a year's time) resulted in difficulties when absence occurred. Including two individuals from each institution assisted in communication to the absent member. However, the schedule of presentations and writing tasks made absence difficult. Missing one meeting could mean a loss of momentum in the development of the proposal.

Geographic distance between institutions presented another obstacle. Each participating institution was located so that coinvestigators from the other institutions had to travel through the downtown area to get to the meetings. A one-hour commute in midday traffic could easily deteriorate to a 2½–3 hour commute during rush hour. Substitution of live teleconferences for face-to-face meetings would be one approach to alleviate these geographic distances. However, the participating institutions did not have this capability. Despite these obstacles, the primary task of proposal development was completed on time.

Multicultural Research Issues

Throughout all phases, team members identified many multicultural issues related to conducting research on fatigue and quality of life. These issues were discussed in depth, and specific approaches were selected.

Theoretical Issues

A critical aspect of all research is the inclusion of clear definitions of the major concepts being studied. In the proposed research, several concepts were espe-

Table 2. Writing Assignments for Research Team Members

Section	Who Was Responsible
1. Preliminary studies	Each coinvestigator describes own studies
2. Literature Review	Four investigators from four institutions
a. Fatigue -Concepts -Definition -Piper Model, including function -Cancer disease and fatigue -Radiation/fatigue -Assessment	
b. Culture	Three investigators from three institutions
c. Physical well-being -Nutrition -Weight -Function -Culture -Demographic issues (e.g., gender, age, socioeconomic)	Three investigators from three institutions
d. Psychological well-being -Quality of life and fatigue -Distress -Concentration -Depression and fatigue -Culture -Demographic issues	Three investigators from three institutions
e. Social well-being -Family fatigue -Caregiver fatigue -Economic implications -Function -Culture -Demographic issues	Three investigators from three institutions
f. Spiritual well-being -Religiosity and fatigue -Culture -Demographics -Survivor interview data	Five investigators from three institutions
g. Intervention -Education models -Ortho Biotech Inc. program -Function -Culture	Two investigators from one institution
3. Revised fatigue definition	Three investigators from one institution
4. Design issues a. Check with statistician regarding N sleep model and self-efficacy model.	Two investigators from one institution
5. Instruments	
a. Collect mood scales.	Two investigators
b. Check for overlap and use with fatigue studies.	One investigator
c. Check for validation with ethnic groups.	One investigator
d. Scanning instrument example	One investigator
e. Check on Spanish translation costs.	One investigator
f. Actigraph-type of data	Two investigators
6. Intervening variables viability or combining cancer treatments	One investigator
7. Study site description	All investigators

cially important: fatigue, quality of life, and multiculturalism. The FIRE® I: LA Team developed the conceptual definition of fatigue within the context of multicultural research. This definition makes explicit the investigators' assumptions that fatigue is culturally bound, resulting in an expectation that different cultures may define, rate, and treat fatigue differently. The investigators defined quality of life as a level of well-being and the satisfaction associated with an individual's life or how it is affected by disease, accidents, and medical treatment (Grant, Padilla, Ferrell, & Rhiner, 1990). A four-dimensional model of quality of life

was accepted and included physical, psychological, social, and spiritual well-being.

The most challenging of the definitions, however, was the multicultural concept. Our focus included ethnic status and socioeconomic status as components of culture; thus, a broad definition of the term multicultural was needed. After reviewing several approaches to defining this concept, we agreed to use one by Kagawa-Singer (M. Kagawa-Singer, personal communication, August 1996). Culture is defined as the shared beliefs, values, and behaviors of a group of people that are learned by its members. Kagawa-Singer further elaborated on this definition by indicating

> Culture is a tool that operationalizes a group's worldview into symbols of beliefs, values, and practices that its members learn to use to ensure their well-being. It identifies a group of people as a unique population with a common identity. A group's worldview organizes the universe into a cohesive, comprehensible vision of reality. Their religion, life philosophy, or both transform their worldview into symbols of beliefs and values that can be used to derive meaning in life and a purpose of being and prescriptions for behavior. This set of common beliefs and rules for behavior provides consistency and predictability for its members in everyday social interactions as well as for those inevitable stressful life events such as sickness and death (Kagawa-Singer, 1998).

We also looked at culture as it related to our local area. The greater Los Angeles area has multiple cultural groups that are difficult to classify. To apply this broad definition of culture to our study, we discussed the various groups that were possible and finally agreed to focus on the four ethnic groups mentioned earlier.

Including the aspect of socioeconomic status as an important component of culture also seemed very applicable to the population in the greater Los Angeles area. Perceptions of fatigue may vary among people from different socioeconomic strata, and the ability to treat fatigue through social support mechanisms (e.g., help from family members and neighbors) may be extremely limited when socioeconomic status is low. We discussed this "culture of the poor" (American Cancer Society, 1989) and felt that it was a very important component of the multicultural research on fatigue and needed to be addressed within the design of the study.

Design Issues

Design issues revolved around the sample and instrumentation. Because the sample needed to reflect the cultural strata to be included, the possibility of accruing sufficient numbers of any one cultural group plus the amount of travel needed to tap different geographic areas were practical issues that influenced our decision. We decided to include English- and Spanish-speaking Latino patients who were of Mexican descent because both groups were sufficiently available. Much discussion about accruing Asian patients involved what subgroups were to be included, where they could be found, and how large each subgroup was. We also discussed translation issues for the Asian population. Literature reviewed revealed a serious lack of research on the various Asian populations. The group consensus was to include one Asian group, defined as any individual of Asian descent (e.g., Japanese, Chinese, Vietnamese, Cambodian, Korean), but only those who were English-speaking. This would provide one Asian contrast group. The fourth ethnic group was Caucasian, which was defined as those of Northern European descent.

By deciding to include four cultural groups, limitations automatically occurred in designing the study. An intervention study would require a control and an experimental group. When this requirement was combined with four ethnic groups and socioeconomic status to include at least two levels of poor and not poor, the resulting design requirement produced 16 cells (4 ethnic groups x 2 socioeconomic groups x 2 experimental and control). The impracticality of accruing subjects successfully to such a design was an obstacle that the team did not overcome. For this reason, a correlational study of four ethnic groups that included lower socioeconomic class as well as a non-lower socioeconomic group was proposed rather than an intervention study. Instrumentation decisions followed next. An enculturation tool was needed to describe the degree to which the individual represented his or her country of origin. The instrument needed established reliability, validity, and sensitivity across a number of cultures. One instrument was found—the Suinn-Lew Asian Self-Identity Acculturation Scale (Suinn, Ahuman, & Khoo, 1992). This scale was created for an Asian population and needed to be adapted for the Latino group.

Translation actually was necessary for only one group—the Mexican Latinos. The tools used to measure variables in the study included an instrument to measure fatigue and one to measure quality of life. We discussed cost, accuracy, specificity to culture and recommended methods for translation. Accurate instrument translation requires the initial translation to the needed language, back translation to check accuracy, and assistance from people within the culture to check for errors and assist with interpretation of results (Varricchio, 1997). The resources of the group included some experience with the translation needed. In addition, we had to request other resources in the proposal to carry out all the steps needed.

Procedural Issues

One procedural issue was how to accrue patients from multiple sites in the greater Los Angeles area. To include sites with the most population of patients from the four ethnic groups, information on each institution was examined. Although the data examined were incomplete, trends in diagnosis and ethnicity were apparent. All possible sites were identified. A map of these sites was designed to select the final sites and plan the number of research assistants needed for accrual and patient follow-up. Facilities were selected based on the population demographics, geographic vicinity, and travel distance. Clusters of the targeted ethnic groups were apparent: the west side of Los Angeles served a high Asian population, south Los Angeles served a predominantly

African American group, and eastern Los Angeles County served Asian and Latino families. The second issue discussed under procedural issues was that of research assistant selection and training. Some debate occurred over whether or not the research assistant's ethnicity/culture needed to match that of the patient. We agreed that the best approach would be to match these two. One of the investigators had extensive experience in training research assistants for multicultural research (Kagawa-Singer & Chung, 1994). The steps for research training were identified under her leadership, and this content was included as a major component of the grant proposal. We discussed the potential for having research assistants cross over to other cultures once they had developed experience in the projected study. Additionally, ways to evaluate training and accrual were developed. Four steps are necessary in the development of culturally competent care. Table 3 shows some of these procedures, and a related publication identifies more detail (Dana, 1993; Kagawa-Singer, 1998).

Table 3. Culturally Competent Care

Steps	Content
K - Knowledge	Reading and discussion of the values, beliefs and behavioral practices of the targeted culture
O - Openness and observation	Observing the patients' expectations and how these differ from the clinician/researcher. Being open to different beliefs and traditions
P - Patience	Allowing sufficient time to earn patients' respect
F - Facilitation	Facilitating mutually acceptable goals

Summary

Multi-institutional studies create issues that require attention prior to the development of an effective working group. What keeps people together working as a group when they are not getting paid, have too much to do already, and have progress on personal research to maintain? Our answer involved visualizing a common goal that could not be accomplished working alone in a single institution. Establishing this common goal takes time, commitment, and trust if the team is to function effectively. The challenges that faced the FIRE® I: LA Team in implementing a multi-institutional study required several approaches. The principal investigator initiated contact with each member of the study group and, because of a proven record of accomplishments and leadership style, each readily accepted the invitation to participate. The group was comprised of clinical experts as well as advanced researchers: a psychologist, an anthropologist, a physician, nurses, and a public health specialist. The investigators represented all of the proposed study cultures: African-American, Asian, Latino, and Caucasian. They contributed not only their professional expertise but also their life experiences. Several approaches were used to establish the team mind set. Deepening commitment of each member occurred at different times. Establishing monthly meetings that rotated among the participating facilities allowed each member to tour the potential site and appreciate the unique contribution it provided for the study. The group developed a schedule of co-investigator presentations in which personal research was presented in a manner that emphasized fatigue issues. Each member was required to reanalyze current and past research data that would enhance the understanding of fatigue occurrence, impact on quality of life, family impact, and financial impact always within a cultural framework. This requirement of each group member demanded significant preparation and a willingness to have personal work examined for its contribution to the proposal development. This activity solidified each individual's commitment to the common goal—a multisite, multicultural research proposal.

Our experience resulted in a successful approach to team development. We developed a proposal and submitted it in response to the Oncology Nursing Foundation Instrumentation Request for FIRE®-II Proposals. The prepared proposal addressed the scientific foundation of cancer fatigue as well as the cultural diversity that challenges all clinical cancer care.

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For more information on this topic, visit these Web sites:

The Body: Fatigue and Anemia
http://www.thebody.com/treat/fatigue.html

Cancer Care: Section on Fatigue
http://www.cancercareinc.org/campaigns/fatigue.htm

Symptom Control in Cancer: Fatigue
http://www.graylab.ac.uk/cancernet/304461.html

These Web sites are provided for information only. Their hosts are responsible for their own content and availability. Links can be found at www.ons.org.

Appendix- D1

IDENTIFICATION OF BREAST CANCER RISK FACTORS: A REVIEW PAPER ON MINORITY AND MAJORITY POPULATIONS

Authors: Aaron Banks and Susan B. Robinson, M.D., M.P.H., Charles R. Drew University of Medicine and Science, Los Angeles, CA

Objective: To identify risk factors and biologic factors that influence breast cancer aggression and survival rates among minority populations.

Background: Minority patients, especially African Americans, are prone to acquire the most aggressive forms of breast cancer and are more likely to die from the disease compared to majority groups.

Methodology: An expansive review of current medical literature with a focus on identifying culturally specific risk factors for breast cancer was conducted. The review highlights molecular factors that impact both the pathogenesis and prognosis.

Results: Differences in risk perception, knowledge, and attitudes about breast cancer explain, in part, the poor survival rates among minorities. Body weight, lactation history, and physical activity may contribute to the disparity of breast cancer aggression among minority and majority populations. Reviews of literature in molecular biology suggest that minority patients are predisposed to the most aggressive forms of breast cancer. The presence of the aromatase enzyme and expression of cathepsin D protease are key factors in breast neoplastic growth and metastasis. These molecules are of interest for the treatment and prognosis of the highly aggressive forms of breast cancer.

Conclusion: Additional studies of molecular research may be beneficial in identifying patients at risk for developing aggressive forms of breast cancer. A better understanding of factors that determine the aggressiveness of breast cancer may lead to the design of more effective therapies.

Appendix- D2

CANCER A JOURNAL OF THE AMERICAN CANCER SOCIETY

AUTHORSHIP RESPONSIBILITY, FINANCIAL DISCLOSURE, AND COPYRIGHT TRANSFER

Manuscript Title: A Review Paper on Factors that Influence Survival Rates among Minority and Majority Populations

Corresponding Author's Name: Aaron Banks
Address: 1621 East 120th Street, MP 27
Los Angeles, CA 90059
Telephone Number: 323-357-34
Facsimile Number: 323-563-59
E-mail Address: _____

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Appendix -E

CHARLES R.
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Research Training Consortium

October 3, 1999

Susan B. Robinson, MD, MPH.
Research Training Institute
Charles R. Drew University of Medicine and Science
1621 East 120th Street
Los Angeles, Ca 90059

Dear Dr. Robinson:

This letter is simply to say " thank you" for giving me the opportunity to learn so much about breast cancer. I really enjoyed working with you.

Since I met you 4-month ago, I have learn a great deal about breast cancer and its impact on the black community. I especially enjoyed the opportunity to educate young people through presentations. You challenged me intellectually now I am more prepared to better serve our community.

So, because of the above, I am willing to share my over 10 years experience and expertise as a Clinical Researcher/Coordinator and Health Educator to work with you in different breast cancer projects. I want you to know I will always make time to help you, especially when you are in the community to train and teach.

Again thank you very much for your kindness, I look forward to future collaborations with you.

Sincerely,

Tsega Habte

Tsega Habte, Pharm.MSc.
Instructor, Internal Medicine and
Senior Clinical Research Associate

1621 East 120th Street, Los Angeles, California 90059 Telephone: (213) 563-5900 Fax: (213) 563-5905

Appendix- F

Bibliography of Final Report

A. Publications and meeting abstracts

Aaron Banks, medical student

Breast Cancer Survival Among African American Women', that was presented before the Multi-Cultural Aspects of Breast Cancer Etiology. Washington, D.C., 1999.

Sherry Crump, MD, MPH

1. Barriers to Screening Mammography Utilization Among Black Women at Grady Memorial Hospital. Submitted to Journal of the National Medical Association.
2. Promotion of heathy eating habits in children (letter). J Pediatrics 1995; 126:850-851.
3. Barriers to Screening Mammography Utilization Among Urban African-American Women. Era of Hope. DOD Breast Cancer Research Program, The Renaissance Hotel, Washington, D.C., October 31-November 4, 1997.
4. Barriers to Screen Mammography Utilization among Inner-City Black Women. American Public Health Association Annual Meeting, New York, NY, November 1996.
5. Barriers to Screen Mammography Utilization among Inner-City Black Women. Association of Health Services Research, Washington DC, June 1997.

Vanessa Parker, Ph.D.

1. The Effect of Ethnic Identification on Cigarette Smoking Initiation Among Adolescents", Journal of Ethnicity & Health, June 1998
2. "Correlates of Breast Cancer Screening Among African American female residents of An Urban Public Housing Community - A Pilot Study."- In preparation.
3. "Empirical Development of Brief Smoking Prevention Videotapes which Target African-American Adolescents."International Journal of Additions 1995:30 (9): 1141-1164.
4. Parker, Vanessa C.: Correlates of Breast Cancer Screening Among African American Female Resident of An Urban Public Housing Community: A Pilot Study. Era of Hope. DOD Breast Cancer Research Program, The Renaissance Hotel, Washington, DC, October 31-November 4, 1997.
5. Breast cancer screening practices among urban African American Women", at The Nuts and Bolts of Building Breast Cancer Partnerships Conference, sponsored by the Los Angeles Partnership for Progress, Breast Cancer Early Detection Program. Los Angeles, California, January 31 - February 1, 1997.

Ling Wu, Ph.D.

1. Cancer Rate Differentials Between Blacks and Whites in Three Metropolitan Areas: A 10 - Year Comparison." Journal of the National Medical Association, (1998) vol. 90, #7, 54-60.
2. "Recent Trends in Breast Cancer Incidence Among Black and White Women in Tennessee,

1989-1998." -Being reviewed for publication (See-Appendix B1).

3. "Breast Cancer Mortality among White and Black Women in Tennessee: A fifteen year trend"- In preparation (See Appendix B2).

Kangman Zhu, M.D., MPH, Ph.D.

1. "Estrogen Receptor Status of Breast Cancer: A Marker of Different Stages of Tumor or Different Entities of the Disease." Medical Hypothesis (1997) vol. 49, 69-75.
2. "Methyl-deficient diets, methylated ER genes and breast cancer: an hypothesized association". Cancer Causes Control (1998) Dec. (9): 615-20.

All original six fellows present abstracts at the DMMCCC annual conferences until the center loss funding.

B. Personnel

1. Aaron Banks
2. Louis Bernard
3. Lori Carter
4. Sherry Crump, M.D., MPH
5. Ida Jean Davis, BA, PA, BS, DC, PhD ©
6. Mosunmola Alaba George-Taylor
7. Tsega Habte, Pharm., MSc.
8. Margaret Kirkclady Hargreaves
9. Melanie Hill
10. Ralph Highshaw
11. Todd Huffman
12. Anthony Kingsley, M.D.
13. Robert S. Levine
14. Patricia Matthews - Juarez, Ph.D.
15. Vanessa C. Parker
16. Linda Lue Pederson
17. Susan Robinson, M.D. MPH
18. Carolyn Rowley
19. Mary Regina Saunders
20. Kofi Alavi Semenya
21. Samuel J. Shacks, Ph.D., M.D.
22. Beverly D. Taylor, M.D.
23. Ling Y. Wu
24. Kangmin Zhu

DEPARTMENT OF THE ARMY
US ARMY MEDICAL RESEARCH AND MATERIEL COMMAND
504 SCOTT STREET
FORT DETRICK, MARYLAND 21702-5012

REPLY TO
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PHYLIS M. RINEHART
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